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GLEANINGS

IN BEE CULTURE

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By A. I. Root

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U.S.A.

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A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled, the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The comb-honey market continues to be draggy, and hardly any demand, and therefore prices have weakened. Fancy white clover sells for 15¢ @ 5¢. For amber there is no demand. The market for extracted is fair, and prices rule as follows: Amber, 5¼¢ @ 5½¢, by the barrel in cans it brings a little more; alfalfa, 7½¢; white clover, 8¢ @ 8½¢. Beeswax, 28¢ @ 30¢.

C. H. W. WEBER,

Feb. 7. 2146 Central Ave., Cincinnati, O.

CHICAGO.—The market is in a rather unsettled state. The offerings of late have been numerous, and there is a tendency toward lower prices owing to the supply being much larger than expected at this season of the year. The fancy grades of white will sell at 15¢ @ 16 cts. per lb., but any thing below this grade is difficult to place at anything above 10¢ @ 12. Extracted honey is also easy, with the best grades of white obtainable at 7¢ @ 8, and ambers at 6¢ @ 7. Beeswax is steady at 30 cts. upon arrival.

R. A. BURNETT & Co.,

Feb. 7. 199 South Water St., Chicago, Ill.

SCHENECTADY.—Our stock of both comb and extracted is greatly reduced, and we look for an increasing demand at the opening of the Lenten season. Producers still having honey on hand should now send it forward. No change in prices. No. 1 white clover, 15¢; off grades, 13¢ @ 14¢; buckwheat, 12¢ @ 13¢. Extracted, light, 7¢ @ 8; dark, 6½¢ @ 7½¢.

CHAS. McCULLOCH,

Feb. 8. 523 State St., Schenectady, N. Y.

SAN FRANCISCO.—Honey market as follows: Comb, per lb., 10¢ @ 13. Extracted, water white, 6½¢ @ 7; light amber, 6¢ @ 6½; dark amber, 4¢ @ 5. Beeswax, per lb., 28 cts.

E. H. SCHAFFLE,

Jan. 23. San Francisco, Cal.

ALBANY.—There is very little honey here of either comb or extracted, and prices on good-condition stock remain firm, and think will do so, there being no stock to carry over. We quote white-clover comb, 15¢; mixed, 14¢; dark or buckwheat 13¢ @ 14; extracted, white, 7½¢ @ 8; buckwheat, 7½¢. Beeswax 30.

MACDOUGAL & Co.,

Feb. 2. 375 Broadway, Albany, N. Y.

PHILADELPHIA.—Comb honey has been moving fairly well the last ten days. The supply is getting scarce, but the demand is equally decreasing, so the prices are maintained about the same. We quote fancy comb, 16¢ @ 17¢; No. 1, 13¢ @ 16; amber, 14¢. Extracted, fancy white, 8¢; amber, 7¢. Beeswax in good demand, 29¢. We are producers of honey and do not handle on commission.

WM. A. SELSER,

Feb. 9. 10 Vine St., Philadelphia, Pa.

KANSAS CITY.—The demand for honey has been very light, with receipts fair. We quote as follows: Extra fancy, per case of 24 sections, \$3.40; strictly No. 1, \$3.30; No. 1 amber, \$3.00 @ \$3.25. Extracted white, per lb., 7¢; amber, 6¢ @ 6½. Beeswax, 30.

C. C. CLEMONS & Co.,

Jan. 31. 306 Grand Ave., Kansas City, Mo.

NEW YORK.—The demand has not improved, and the supply is more than the demand. Large sales can not be forced, even at cut prices. Fancy comb, 15¢; No. 1 comb, 13¢ @ 14; buckwheat comb, 12¢ @ 13; mixed, 11¢ @ 12. Beeswax firm at 30, and good demand.

FRANCIS H. LEGGETT & Co.,

Feb. 7. Franklin and Varick Sts., New York.

BUFFALO.—The stock of honey in our market is quite light. No extracted here, and some call for it. Fancy white comb, 15¢ @ 16; A No. 1, 14¢ @ 15; No. 1, 13½¢ @ 14; No. 2, 12½¢ @ 13; No. 3, 12¢ @ 12½; No. 1 dark, 11¢ @ 12; No. 2 dark, 10¢ @ 11. Extracted, white, 7½¢ @ 8; amber, 7¢ @ 7½; dark, 6¢ @ 6½. Beeswax, 28¢ @ 30.

W. C. TOWNSEND,

Feb. 3. 167 Scott St., Buffalo, N. Y.

FOR SALE.—We are sold out on alfalfa honey, but have ten 3' 0-lb. bbls. of light amber and buckwheat at 7¢; forty 250-300 lb. bbls. fancy basswood at 8¢; 60-lb. new cans, two in a case, 9¢.

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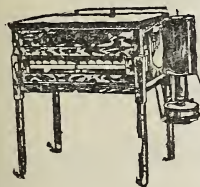
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GLEANINGS A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS **BEE CULTURE** ILLUSTRATED SEMI-MONTHLY Published by THE A. I. ROOT CO. MEDINA, OHIO. \$1.00 PER YEAR

Vol. XXXI.

FEB. 15, 1903.

No. 4.



WELL, WELL! it seems like old times to have A. I. Root writing about bees again. More power to your pencil, Bro. A. I.

M. ED. BERTRAND says bees attack a person worse when stooping than standing; perhaps because when stooping he has more the appearance of some animal. [I have never noticed this characteristic on the part of the bees. They are so quick in their actions at times, that, even if they were a trifle more inclined to attack a person in a stooping position, the fact might not be observed.—Ed.]

THAT FIRST VERSE of Eugene Secor's poem, p. 90, is hardly a fair sample. It's merely the introduction. When he gets to talking about what those eleven youngsters did and saw in the old days when some of us were not as stiff in the joints as now, it just takes hold of the heart-strings. [That's what I meant to say, doctor. I hope all will get the book. I did not have room for quotations.—STENOG.]

IT IS NOTICEABLE that, in the discussion as to whether brood-combs become too old for best results, the foundation-makers of this country seem to be a unit in saying that old comb rears just as large workers as new. Certainly self-interest would not range them on that side. [Yes, it is to the interest of the foundation-makers to talk the other way. If it were true that old combs should be renewed every ten years or oftener, the foundation-makers would be sure to make quite a handle of the fact in their advertising.—Ed.]

SUCCESS to you, Ernest, in getting up that gasoline-engine! I've a whole lot of

faith in it. [The more the thing revolves in my mind, the more sure am I that I am on the right track. That one day of turning the crank of a six-frame Cowan extractor in California, extracting 12 lbs. to the gallon, sage honey, did more to pound into me the necessity of some sort of power to turn such machines, instead of hand-power, than any thing else. Yes, it pays to get out among the bee-men and actually encounter what they have to run across.—Ed.]

THE EDITOR wants to make friends with me about bees preferring old or new comb, p. 105. Um-m-m, I s'pose so; but I don't see any clear proof given by Mr. Laws that bees in any case preferred new comb. The nearest he comes to it is that the brood is scattered in the old comb, the other cells being filled with pollen. Of course the brood would be scattered if the cells were pre-empted by pollen. I'd like to hear of just one case where the bees passed over old comb in good condition, leaving cells in it entirely empty, to occupy new comb or foundation. [This summer, if I can get the time, I will look this matter up a little more.—Ed.]

THAT TESTIMONY of A. I. Root, p. 105, is to the effect that he sowed white clover in August, 1901, and after growing that year it blossomed the next year. That was hardly blossoming the first year. Last year I sowed white-clover seed in the winter in the window, transplanted the plants in the open ground, and they blossomed finely. Some of the same seed was sown in the open in the spring; and if it blossomed at all it was poorly. But it didn't have the best chance. After all, the usual question is not whether it blossoms the first year, but whether it yields honey. It hardly seems it would blossom at all without yielding honey and producing seed. [Probably A. I. meant it blossomed within 12 months after sowing, not that he sowed it in 1901 and cut it in 1901.—Ed.]

I NOTICED an error in the last Straw, p. 48, where it says 86 to 162 per cent means

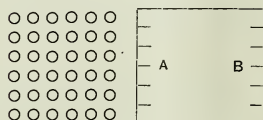
86 to 162 "out of every 10;" but the error shows on the face of it, for any one with a slight knowledge of percentage knows that so many per cent means so many out of every 100 and not "out of every 10," so I didn't think it worth while to say anything about it. But a correspondent writes in rather severe terms, questioning either my truthfulness or my knowledge of percentage. As I consider myself fairly at home in percentage, and would like to build up a reputation for veracity, I hasten to say to my disturbed friend that I think when that Straw was written there was a zero in it that was either lost out in the mail somewhere between here and Medina, or else it was carelessly dropped on the floor of the printing-shop in that Buckeye town. Yes, that "10" should be "100."

In the experience I have had pressing wax, it has appeared to me that *time* is one of the most important factors—a factor that has not been sufficiently emphasized. If you double your pressure and cut your time in two, I think you'll not get as much wax. If you give half the pressure for twice as long, I think you will get an increase of wax. [Right you are, doctor. We have learned by experience that it is not tons of pressure, but a mild pressure exerted often or continuously, that does the work. The free wax must have *time* to disengage itself from the mass of foreign matter; and a high pressure in a short time will not accomplish as much as a low pressure applied intermittently; but each intermittent pressure should be a little harder than the one preceding; that is to say, the mass of slumgum should be reduced in size a little at a time. One may say it takes time to do all this. That is true; but at the present price of wax it *pays* to take the time, especially if taken in bad weather or at night.—ED.]

OBSERVATIONS at Swiss experiment stations show that more honey is consumed by the bees in mild than in severe winters. This accords with the fact that in this country bees consume more in the South than in the North. [Exactly. And yet there are some who do not seem to comprehend why this is so. When it is very cold and the bees are *properly housed or protected* they go into a quiet sleep—not a state of hibernation, but a state where activity is practically suspended, where there is no brood-rearing, where the waste of tissue is as nothing comparatively, and they merely exist. In such conditions the consumption of stores to supply the waste will be very light; but in a warmer climate, where the bees can have flights every now and then, when they can move around on the brood-frames, rearing a little brood, there is a large waste of tissue, and of course it has to be made up by eating more stores. When bees are *poorly* protected outdoors they will eat more than if kept reasonably warm. This is why cellared bees consume less than those outdoors.—ED.]

WAX-PRESSES in which the wax is pressed under continuous heat, for some strange reason, seem to be less in vogue in this country than in Europe. But they're forcing their way to the front here. I have had a strong leaning toward hot water rather than steam, partly because of its advocacy in foreign journals, partly because it seemed to me that wax when kept continually under hot water would be kept hotter than when steam was merely allowed to force its way through the wax. But I have been obliged to change my mind when confronted with a machine that would confine the steam to such an extent that, as in the German wax-press, the steam would escape from the upper part at the boiling-point. If the same heat can be maintained with the steam, then it must have the preference, for convenience in getting the wax out is all on the side of the steam and against hot water. [We went all over that ground very carefully here at Medina, and came to the conclusion that there was no advantage in the use of hot water over steam. Pressing wax under hot water is a messy job; and steam under pressure can be, as you know, hotter than 212.—ED.]

THAT EXPERIMENT concerning fertilization in confinement, p. 94. As I understand it, the tent stood close beside a large apiary, represented



by the o's in the illustration; the nuclei containing the virgin queens were in the tent, or beside it at A,

and the drones at B. Let me suggest how it might have been: At the time of day when the virgins were inclined to flight, there was a great roaring in the large apiary so close by, and the virgins would try to fly in the direction of that roaring. If the drones were attracted by the same noise, it would only attract them to fly into the tent. Slightly corroboratory of this view, I may mention that, for a good many years, following the lead of Adam Grimm, I left an opening for ventilation at the back of each hive at the top. Although in some cases this seemed a freer opening than the regular entrance, the young bees never used it for their play-spells, nor was it ever used as an entrance. The only reason I could see was that the young bees were attracted by the noise at the regular entrance. Now suppose Mr. Holtermann had set the nuclei with the virgins at B; is it not possible that they, following the direction of the noise, would have made their way freely into the tent? [You have very possibly solved the mystery as to why the young queens did not come out inside of the inclosure. But Mr. Holtermann is going to write another article on the subject, and will doubtless cover this point in detail. I want to say right here now that Mr. Holtermann's experiment convinces me that the plan can be made to work.—ED.]



From east to west, from north to south,
War's growling notes are heard;
The Slav, the Briton, Gaul, Greek, Hun—
Yes, all mankind—seem stirred.

That "bologna-sausage" honey sent us by Mr. Aikin is deserving of all the praise bestowed on it. It looks like a block of marble about the size of a quart cup. The granules are too fine to be noticed, causing the mass to taste like some cream candy.

Foreign bee journals as well as those published in this country teem with new kinks in machinery for the use of bee-keepers; also new methods of manipulation in the apiary. In our last issue Dr. Miller, in Straws, referred to a machine for extracting honey from both sides of the comb at once. The tops of three frames are fastened together so as to form a triangle. The space between them is filled by a wheel to which the frames are attached. As the wheel revolves, like a common grindstone, the frames also rotate in the same plane. The apparatus is covered above and below with a cover, probably of tin, and the honey runs out of a faucet at the bottom. In the same journal, *Gazette Apicole*, one of our French exchanges, I see a device to capture the queen during swarming. I think a description will make it plain without a cut. The inventor says:

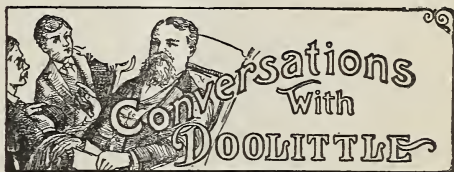
"My apparatus consists of a kind of hopper, 24×24 inches at the top, and about 16×16 at the bottom. This bottom is closed by means of perforated tin. The hopper rests tight over an open hive-body. Suppose I wish to capture the queen or all the queens of a swarm. I shake the swarm into this crib. Immediately the bees will go through the perforated tin, and enter the box below. On top of the tin the queen or queens will be found, when their capture will be easy. If I wish to introduce the queen to the swarm I let her run through a hole in the hive-body."

Progres Apicole informs us of the death of Dr. Reisser, President of the Algerian Bee-keepers' Association. He died in Philippeville, Algiers, Dec. 9. He was editor of the only bee journal published in the Arabic language. Dr. Reisser was well known in Europe, and his death is a real loss to bee-keepers there.

In the same journal I find the following, apparently starting in Germany:

"Mr. Barthel, near me, had a fine young Syrian queen. She hatched in June, began to lay in July, and soon had several frames filled with eggs. Although the col-

ony was populous and the honey-flow good, Mr. B. never found any larvæ in the cells. He told me about it, and asked my advice. I proposed to him to make some experiments, and he agreed. I took a frame containing some of these false eggs, and introduced it to a colony from which I had taken the frames of brood, and whose queen I had caged. The eggs produced no larvæ, although the experiments were made in different ways. In the fall, the honey-flow diminishing, we fed heavily, but always unsuccessfully. We wintered the colony under the best conditions, but unfortunately the queen died during the winter. The trouble was doubtless owing to some sexual defect in the queen."



POLLEN IN SECTIONS, ETC.

"Hello, Doolittle! Shoveling snow, are you?"

"Looks like it, Smith. What a terrible storm we have had for the past twenty-four hours! Did you ever see it snow and blow harder than it did yesterday afternoon?"

"I do not know that I ever did—could not see ten rods, the storm was so heavy, and it piled into buildings everywhere. Have you noticed how this south storm drove the snow into the entrances of the hives till it has piled the snow clear up between the combs?"

"No, I had not looked at the seven hives which I have outdoors, but I know that it does sometimes do this where the entrance is not shaded from the sun or shielded from the wind. I always shield mine."

"How do you do this? It is something I never heard of. I supposed it was necessary to leave the entrances open all winter."

"The entrances are not closed more than yours. I simply set a wide board on the bottom-board to the hive, leaving it out away from the hive, where it rests on the bottom-board four or five inches, so that, when the top is leaned up against the hive above the entrance, it will stay there, thus making a storm-door, as it were, in front of the open entrance. Let us go up to the hives, and then you will understand better about this, and we will see whether the snow has blown in or not. There, do you see how nicely that leaning board shields the entrance and front of the hive from sun and snow?"

"Yes, certainly. I wonder some one has not written about this."

"I have written the matter up, but not in several years. There, now that the board

is removed, you see there is no snow in the entrance."

"That is so. And mine was chock full and the snow clear up among the combs. Well, this was not what I came over for, but it has more than paid me for coming. But why do you wish the hives shielded from the sun?"

"In bright sunshiny days during the months of February and March, where the sun can strike the hives in front, and shine directly in at the entrance, the bees are often enticed out into this warm sunshine; and finding it so warm and nice in this bright sheltered nook they think it must be thus warm everywhere, so take wing only to be chilled as soon as they come into the cool air away from the entrance, fall down on the snow, and perish, and thus valuable bees are lost which would not think of venturing out when the air was thus cold if the sun was not allowed to shine in and on the entrance, so as to entice them out."

"Why, that is perfectly plain as you explain it, and it accounts for the loss of thousands of my bees every winter, which I have seen lying dead on the snow. But I had consoled myself that I was right in leaving the hive thus exposed to the sun, as I have read somewhere that they should be so left that the hives might be dried out and warmed, which was to the benefit of the bees. What do you think of this part of the matter?"

"That part may be all right; and if you will stop to think while you are looking at these boards, you will observe that these shield-boards do not project on either side of the hive, therefore the sun can shine on the east side of the hive till very nearly noon, and soon after noon it begins to shine on the west side, and continues to do so until it goes down in the west. This warms and dries the inside of the hive all that is necessary, while it does not entice the bees out till it is warm enough for them to fly and get back safely."

"Well, now, that is so. I'll fix mine that way at once before I lose more bees. But how about these boards when it is really warm enough for the bees to fly?"

"There comes the main objection to them. When it is warm enough for the bees to fly it is better to have them removed, which I do; and then at night, or as soon as it turns cold again, I replace them. This makes some work, but I am satisfied that it is paying work. But you spoke as if you came over for some special purpose. I should like to talk with you an hour, but I have to leave home soon to meet an appointment."

"Well, I'll try not to hinder you long. I came over to ask you why bees store pollen in sections. I had one colony the past season that stored large quantities of pollen in the honey-boxes, while the other colonies stored very little, if any. If there is any help for this matter, I wish to prepare that help during this winter, so that it may be ready when wanted next season."

"The storing of pollen in the surplus-apartment is largely brought about by the queen filling the brood-chambers so full of brood that there is not room enough for all of the needed pollen below."

"Then larger hives would be a remedy."

"Yes, for such storing does not very often happen when a large hive is used; but with our small brood-chambers of the present day it is not at all unusual for this state of affairs to exist where no honey-board or queen-excluder is used."

"Then you think a queen-excluder would help this matter?"

"Yes, I know it will, and especially the queen-excluding honey-board made of perforated zinc and wood; and I think it would well pay for using on this account alone, where the brood-chamber used is not larger than from six to eight Langstroth frames. I think you contract your hives by means of dummies down to five or six frames, do you not?"

"Yes, and that is probably the trouble. But is there no other plan of avoiding this matter?"

"Yes, there is what is known as the 'break-joint' honey-board, which is almost entire proof against the storing of pollen in the sections."

"What is a break-joint honey-board?"

"It is a honey-board so made that the openings from the brood-chamber to the surplus-apartment come directly over the center of the top-bar to each frame, instead of being over the passageways between the combs, as our honey-boards of the past were made."

"What is that for?"

"This causes the bees to come up on the top-bars of the frames till they reach the centers of them before they can enter the sections, when, by then going up through the bee-space, they are in the sections. Or, in other words, this gives a crooked passageway instead of the continuous passageway of our fathers."

"What has this to do with the matter?"

"Such a circuitous route causes the bees to think that the room above is not a part of the brood-chamber, so they do not store pollen in it, for pollen is, as a rule, stored close to the brood. For the same reason, large hives give the same results, as in this case there is usually quite an amount of sealed honey between the brood in the hive below and the surplus-arrangement above."

"But it is not calculated that bees will store as much honey in the sections with the large brood-chamber, is it?"

"No. It is claimed that bees will not work as well in section boxes where they can store large quantities of honey below before they commence in the sections, so it is thought that a small brood-chamber is much more preferable during the white-honey harvest, even if we do have to go to the trouble of making and using a special honey-board to keep the queen and pollen out of the sections. But I must be off now."



In this issue we are obliged to leave out our usual installment of illustrated matter, for the simple reason that a large amount of good matter has been accumulating for several months back, and is still awaiting a chance to get before the public, most of which, too, is already in type. So this time we put in nothing but pure reading-matter, and that relating largely to questions and answers. Some of them are somewhat belated; but it is the best we can do.

HOW THE RAMBLER'S DEATH IS MOURNED BY OUR READERS.

KIND and endearing expressions showing real sorrow and love for the Rambler are coming in by the hundreds. I knew our friend was dear to all our subscribers; but I never realized that he had so closely interwoven himself into the hearts and affections of all our readers. Those whom he met on his travels seem to feel especially the loss. They think of him as a near and dear friend and brother, taken, as it were, from their midst; for as he appeared in almost every issue of this journal our readers felt as if they were keeping in close touch with him; and now to know that they shall see and hear him no more, the blow seems to strike deep to the heart.

I should be glad to publish some of these letters; but at this rate I could fill up several issues with such letters alone. As it is, I can only refer to them in this general way; and I am sure I am expressing the thanks of his surviving relatives and his many friends when I say we one and all feel deeply grateful for all these kindly expressions of love and affection.

THE CLIMATE OF CUBA, AND HOW A. I. ROOT ENJOYS IT THERE.

In a letter recently received from A. I. Root, in Cuba, he says he never felt better in his life. Verily he seems to have found the "fountain of perpetual youth," not in Florida, but in Cuba. The climate seems to be delightful; his malaria is entirely gone, and he goes about thinly clad, like the natives. When he left Medina he had a pinched look; malaria and chills were hanging over him; he was muffled up in heavy overcoat and overshoes, and had a fur cap drawn down over his head and ears. Now these things are all cast aside.

He is outdoors most of the time, riding a wheel, and is recuperating as perhaps he never did before, even in Michigan, which latter place has seemed hitherto to be a panacea for all his ills.

It is barely possible that some of our readers may have imagined that the climate of Cuba is unhealthy, from the fact that our dear friend the Rambler died of fever; but where he was located in Taco-Taco it was swampy, and infested with mosquitoes of the malarial kind. But the main portions of Cuba, especially in the winter, are decidedly healthful.

THE GENERAL SUBJECT-MATTER OF A BEE JOURNAL; THE VALUE OF QUES- TIONS AND ANSWERS.

I HAVE often wondered what parts of our journal were most interesting to the *mass* or the great *majority* of our subscribers. I have supposed the technical articles from the limited class of expert bee-keepers were eagerly read by other expert bee-keepers, but that the department of questions and answers was of but little interest to them. And yet I have had bee-keepers of many years' experience tell me they have often picked up many valuable little kinks in that part of our journal.

In this issue we have given an extra number of questions and answers, and I shall be glad to hear from our subscribers as to whether or not a preponderance of this kind of reading is what they want.

Perhaps a little experience of my own may be somewhat suggestive. I am a beginner in automobile driving. I sent for several text-books on running gasoline-engines, and subscribed for two automobile journals; but I am free to acknowledge that the part of these journals most interesting to me is that relating to questions and answers. The long technical articles are too much for me. A subscriber, for example, goes on to state that his gasoline-engine slowed down very fast, and finally came to a standstill, and he could not make it go. The answer of the editor, who is supposed to have "been there," is "mighty interesting reading," I can tell you. From the department of questions and answers in these journals I have picked up more ideas of value in the management and running of these horseless vehicles than I have from any other department of the papers or from any book; and when I came to compare my own experience as a novice in the automobile line I began to wonder whether my experience might not be almost identical with that of beginners in bee-keeping who are eagerly thirsting for information.

We can make our text-books as elaborate as we please; we may try to cover every phase of experience; but there are many combinations of experience that can not be entirely covered in text-books; and it therefore devolves on some editor, who has learned in the dear school of experience, to pilot his brother-man out of darkness into light.

I should be very glad to get postal-card expressions from some few thousands of our subscribers. By the way, it may not be known, but GLEANINGS goes regularly to over 15,000 families now; and we as pub-

lishers and editors are anxious to know just what those families wish to have in the way of a bee journal.

FORCED SWARMING AS PRACTICED BY J. E. HETHERINGTON AND P. H. ELWOOD.

IN this issue there is an article by P. H. Elwood, who has been associated for many years with Capt. J. E. Hetherington. The latter has owned as many as 3000 colonies, and Mr. Elwood something over 1000. They, together with Mr. Coggeshall, of West Groton, same State, come near being the most extensive bee-keepers in the world. It appears that Mr. Elwood and Mr. Hetherington have for years practiced forced swarming in one form or another.

ATTENTION, BEE-KEEPERS; THE NATIONAL GOVERNMENT TO OUR AID.

OUR subscribers are urged to write a letter at once to the Hon. Redfield Proctor, Chairman of the Committee on Agriculture and Forestry, of the United States Senate, urging an addition to the appropriation for apicultural investigation. Be sure to make the particular point that *this is to be in addition to the present sum proposed for the Department of Entomology*. I am informed that, as the matter now stands, the funds of the Division could be used, but probably not unless we get something added to the amount now available. Apiculture is now named in the bill reported from the House to the Senate, and referred to the committee of which Hon. Redfield Proctor is Chairman. This is very important; and now that our subscribers have the opportunity to get a more substantial recognition in the way of financial aid for experimental work on the part of the government of the United States, they should write at once, or, still better, send a telegram to the address given above.

IMPROVEMENTS AT THE REVIEW OFFICE; THE MUSIC OF HEAVY MACHINERY.

I HAVE just noticed by the *Bee-keepers' Review* that my co-laborer, W. Z. Hutchinson, is also trying the eccentricities of a gasoline-engine, not in an automobile, but to run two printing-presses. Somehow Bro. Hutchinson strikes on the same hobbies that I have had, and one of them has been amateur photography.

But Bro. Hutchinson has put in a gasoline-engine, shafting, and a big cylinder press, to run off the *Review*. Formerly he set the type at home, and hired the printing done up town. Now he has reversed the process—has his type set by machinery up town, and does his printing at home. He writes very graphically of his experience in writing editorials and preparing copy for the *Review* amidst the "fussiness of a gasoline-engine," and the "clank, clank, grind, grind," of two presses going on in the room below. He writes:

I am like an editor I once read about. Some one asked him if the noise of the presses did not disturb him. "No," he cried, "that is sweetest music in my ears. What worries me is when I don't hear it." It

may seem strange to some, but noise of this kind does not disturb me. Some of my best writing has been done on a railroad train. The monotonous noise acts as a curtain, shutting out all other distractions.

For several years I have dictated my "stuff" in a room just above the press-room. The "clank, clank, grind, grind," expresses the situation exactly; and yet these things never disturb me. On the other hand, if the noise stops I wonder what the matter is. Just now there are two cylinder presses, both driven by electric motors, rumbling beneath me. In an adjoining room, just back of me, the book-binding is done, with its combination of noises. In another nearby room is the chuckety-bang of platten job presses. Then there is the rumbling of heavy trucks, and the moving of heavy freight, in the packing-rooms, and every now and then the roar of a ponderous freight train carrying coal from the near-by mines to the lake; and yet, strange as it seems to me, I am never annoyed by any of these things.

HOW TO GET WELL AND KEEP WELL; SCIENTIFIC EXERCISE; AN EXPERIENCE OF THE EDITOR THAT MAY BE USEFUL TO SOME OTHER BROTHER OR SISTER.

IN this issue I have referred to the fact that my father's health has greatly improved during his stay in Cuba. Some of our friends and readers have been learning indirectly that *my* health has been failing. The strenuous life of a manufacturer and of trying to get out a bee journal has been rather wearing on a little chap like me; but I am glad to announce to our subscribers that I am now on the mend again.

Something over eight years ago I broke down with what the doctors called nervous prostration, and then I went on the beef diet—see GLEANINGS for 1895, pages 676, 708, 710, 786. I fell away in weight from 140 to 107 lbs.; but after taking the diet I got up to 155 lbs. The tremendous stimulus I then received has lasted me up till within a few months back. But again my nerves, or something, began to fail; and again I looked to the beef diet, and to Dr. J. M. Lewis, of Cleveland, in the Rose Building, to pull me out of my troubles.

For a few weeks back I had not been able to sleep well. My mind would keep on with the busy whirl of the factory; but I had not been on the diet for three days before that beautiful child sleep came back, and I have been having those dreamless slumbers of fully eight hours for the last five weeks.

For the benefit of some our newer readers, and for the benefit of those who have inquired what has brought about this most pleasing change, I will repeat very briefly the essentials of the treatment.

Round steak of mature beef with *all the fat cut off* from it, preferably ground and broiled, is the chief article of diet. A little bit of dry toast, dried clear through, mind you, so that it is as brittle as a piece of glass, constitutes the other portion of the

diet. But now listen. The amount of dry toast, to get satisfactory results, should not be over a quarter of the bulk or weight of the meat. A tonic, prescribed by Dr. Lewis, is taken before each meal, and a preparation of pepsin after. A full pint of water, as hot as it can be swallowed, is to be taken about *an hour and a half before each meal*. This part is very important, for but very little liquid is taken while eating. As Dr. Lewis explains, the stomach can not take care of a sloppy mass, for the reason that the digestive fluids are neutralized by the excess of water. The purpose of the hot drinks *between meals* is to wash out the stomach, leaving it clean for the next supply of nourishment. When a patient commences on the diet he may have to begin on as low as five or six ounces of meat. He must cut down some of his physical activities, for his strength will begin to decrease, and he may lose flesh. But if he can start on about eight ounces, and digest it, he probably will not lose either flesh or strength. When I began on the diet this last time, I started with eight ounces, and am holding my own.

But that is not all. I take, in connection*, light physical exercises, for it will be understood that our physical frames are machines, and some portions of them become sluggish from want of action. One of the exercises is to lie prone on the back and lift both feet (keeping both knees rigid and straight) at a right angle to the trunk of the body, or perpendicular to the floor. They are raised and lowered very slowly a few times. The patient next reverses the operation by keeping the feet on the floor and raising the body. As soon as it assumes an upright position, or a sitting posture, the patient is to reach forward, keeping his legs straight, and touching his toes if he can. He raises and lowers, repeating the operation as long as he can do so without too much fatigue. He next stands upright, swings downward, keeping the knees or legs straight, and touches the floor if he can, or as near as may be, and then rises to a perpendicular. In this way he swings forward and backward. He next bends *side-wise* at the hips, keeping the body straight so far as the front and back are concerned. He thus rocks sidewise, bending as far as he can. He now takes deep breathing-exercises that consist of taking into the lungs a large amount of air, expanding the diaphragm as far as possible. He then expels it, drawing the diaphragm in, exhausting the lungs as much as possible. This heavy breathing should be kept up vigorously, enough to make a sound like a steam-engine puffing and blowing. But be sure you cause your diaphragm, or stomach-walls, to expand and contract. The effect of all these exercises is to stimulate the action of the bowels, which, perchance, may be sluggish.

One should be very careful about *over-*

* This is separate and apart from the beef diet, and may have to be omitted until the patient acquires more strength.

doing in the "physical-culture exercise." When he begins his work he should start quite moderately, and increase a little every day. Five to ten minutes of exercise per day, either before going to bed or just after getting up, ought to be enough for a daily practice. The average person will feel that the involuntary action of the bowels is greatly stimulated; and sometimes the effect of the exercises alone is enough to bring about a state of perfect health.

Let me emphasize the importance of being careful not to overdo. Have your heart examined. Do not tire yourself out in any one of the exercises. Almost as much harm is done by overdoing—yes, *more* harm—than by taking no exercise. One feels the exhilaration, and is apt to do too much. The average athlete—the one who tries to excel or outdo—is pretty apt to be short-lived. Moderate exercise, taken under the advice of a physician who has previously examined the heart, will add years to the life of the average person.

But I found that exercise alone in my case was not sufficient to bring about that quiet sleep I was seeking. I was beginning to have malarial chills, and seriously entertained the thought that I might have to go to Cuba; but no sooner had I gotten on to the beef diet than these chills began to disappear. The malaria is now largely gone, and the dreamless sleep of childhood, so refreshing, is a part of my every-day existence.

No one in a bad state of health should attempt to go on the beef diet alone, for it is risky to do so unless he can do it under the direction of a competent physician who makes this form of treatment a specialty. Dr. J. M. Lewis, of Cleveland, or Dr. Salisbury, of New York, is competent to prescribe in cases of this kind.

I almost forgot to tell our readers that one of my prescribed courses of health treatment (I prescribed it myself, with the sanction of my physician) is driving an automobile; and now you will begin to understand why I was forced to purchase one, even if they are expensive.

To show you what the beef diet has done for a friend of mine, whose name I withhold, I herewith give you an extract from a recent letter he wrote, in response to one from me advising him to go on almost clear meat. He was suffering from a bowel trouble of long standing, and, as a last resort, he wrote to me because he had understood I knew something about the beef diet for curing diseases that drugs could not handle. He writes: "The treatment you have so kindly indicated for me resulted in a most wonderful improvement, for which great blessing I thank you from the bottom of my heart."

THE bee-keepers of Maine are hereby informed that a strong effort is being made to get a foul-brood bill enacted into law at the next session of their legislature. Write to your Senators and Representatives at once.



THE ALFALFA QUESTION.

The Tendency toward Late Cutting; One Advantage of Late-cut Hay; Some Reasons for Fearing Early Cutting.

BY J. A. GREEN.

When M. A. Gill condemned in such unmeasured terms those who had stated that there was a tendency to cut alfalfa earlier, and admitted that there was an advantage in doing so, I was mildly surprised, and at first felt inclined to remonstrate. I was one of the offenders. I had but lately returned from a trip through a number of the Western States, and in an article in *GLEANINGS* had given my impressions on the alfalfa question as obtained from what I had seen and heard from various sources and in several States. It had not occurred to me that there was any reason to doubt what I had been told, as I heard no conflicting testimony, and it all tallied with what I knew about hay-making myself. I knew nothing at that time of alfalfa from experience, but I knew that a great many, if not the majority, of the farmers of Illinois, allow their red clover to become too ripe to make the best hay, and it seemed very reasonable that the same thing was true of alfalfa. Perhaps I am putting it a little too strongly to say that I *know* this. I ought, no doubt, to say that I *think* I know it, for doubtless there are those who are ready to rise up and say it is not so, just as in the case of alfalfa.

After the article was mailed I had an uneasy feeling that perhaps I had said too much. It is not always best to tell all you know, nor to concede too readily what may be to your disadvantage. I half hoped that, if the editor saw fit to publish it, he would first run his blue pencil through a part of it. It was with regret that I saw the article copied from *GLEANINGS* into some of the agricultural papers.

After the castigation it received from Mr. Gill, I decided, after the first impulse to hit back had passed, that perhaps I had been properly punished, and that the matter had better be allowed to rest. But I began to collect what evidence I could get hold of in order that I might at least set myself right if I was in error. I found, as I expected, that there was some disagreement among growers; but I was not so well prepared to find that those who had conducted experiments at the agricultural stations were not in complete accord, and that bulletins required careful reading to be sure the summing-up was justified.

The bulletin of the Utah station seems to show quite conclusively an advantage in early cutting. The Colorado station finds early-cut hay richer in protein (*GLEANINGS*, p. 13), yet the director of the station stated in a letter to me that the conclusion of a bulletin soon to be issued was that the proper time to cut alfalfa is when it is in full bloom.

Alfalfa-raisers here, whatever may be their theory, vary greatly in their practice, and I am inclined to think that Mr. Watson (p. 23) is not far wrong in saying that the average ranchman is not likely to cut his alfalfa too early. At least, this is true where any large acreage is to be cut. In this locality there are very few fields of alfalfa so large that the grower can not get them cut within a very short time after he is ready to do so, and I have more confidence in sweet clover as a future source of honey than in alfalfa.

Among hay-raisers as a whole, the tendency is undoubtedly toward earlier cutting, and the experiment-station bulletins will operate to increase that tendency. The truth may be unpalatable to some, but it is none the less the truth, and we shall not gain any thing by, ostrich-like, covering our heads and declaring we do not see any danger. We need all the light on the subject we can get.

I will mention here an argument in favor of late cutting that has not yet been brought out. The riper the alfalfa is when cut, the stronger and stiffer the stem. Hay made at such a time does not pack as compactly in the stack as that cut earlier. When it is sold in the stack by measurement instead of by weight, as is very common, there is a considerable advantage to the seller in this quality of the hay. Doubtless this way of measuring the yield of hay is largely responsible for the delusion that a greater yield of hay is secured by late cutting. The Utah bulletin shows very conclusively that early cutting gives a greater number of pounds to the acre. I suspect that the more general introduction and use of hay-scales would do much to decide many in favor of earlier cutting.

As to the article by Mr. L. B. Bell, p. 18, there are several points in it that will bear a little further discussion. I fear that there is little chance of influencing users of hay against early-cut alfalfa. There is a great variation of opinion, even among the so-called "practical" men who do the feeding. Horses here are seldom fed any thing but alfalfa. Only those used for driving or those that have exceptionally hard work to do ever get any grain. As a sole ration, alfalfa is not fit for a horse intended for fast driving, and neither is any other kind of hay. It is too bulky a food for that purpose, however nutritious it may be. Yet all the liverymen here feed alfalfa hay and no other. Some of them say very emphatically that it is the very best hay for the purpose that there is. They stipulate, however, that it must be from the first crop,

which horsemen generally consider superior to the second or third crop. They apparently pay no attention to the time of cutting, though if questioned they will generally express a theoretical preference for hay cut when in full bloom.

As to the laxative effects of alfalfa, early cut or otherwise, opinions differ again. Unless questioned particularly on the subject, few will ever think to say any thing about it; and it is evident that with most of them, at least, any opinions they may have on the subject are not for every-day use. I have never seen any indication that it is too laxative. In fact, in my experience in feeding horses I have found that a return to alfalfa-feeding—early-cut alfalfa—for even two days was sufficient to correct the too laxative effects of other kinds of hay—oat hay in this instance.

Mr. Bell tells us that 18 lbs. of mature hay is sufficient for a horse, while "if the hay is cut before maturity, a horse will eat 30 lbs. or more and still be hungry, because of the lack of nutrition in the hay." Let me quote from the summary of the Utah bulletin: "The early-cut alfalfa contains the highest per cent of protein and fat, the most valuable food constituents, and the lowest per cent of crude fiber, the most indigestible portion. The former decrease constantly, while the latter increases rapidly from early bloom to the full maturity of the plant."

"The more important nutrients, protein and fat, have the highest per cent of digestibility in the early cuttings, and it grows less and less with the age of the plant."

"In the feeding-tests, the highest gains were made from the early cuttings, and the lowest from the late, the results standing proportionately as follows: Early cutting, 100; medium, 85; late, 75."

"The annual beef product per acre was largest from the early cuttings, not only in the general average but in each separate season's test; and that from the late cuttings was the smallest, the proportional products standing as follows: Early cutting, 100; medium, 79½; late, 69½."

This does not look as though early-cut alfalfa was a wishy-washy, innutritious food. The experiments at this station covered a period of five years, and the results are an average for that time. Their "early cutting" was made when the first blossoms appeared; the "medium" when the alfalfa was in full bloom, and the "late" when fully half of the blossoms had fallen.

The experiments at the agricultural stations are, for the most part at least, made in the most careful and thorough manner. They are not mere laboratory experiments, but practical tests made in the field and stable. The bulletins from these stations are read and acted upon by thousands of intelligent farmers, and the leaven is surely though slowly permeating the whole mass. It will be useless for us to decry them, or to attempt to combat them except with facts equally authoritative. Mere as-

sertion, and argument based on personal opinion, will be of little avail. As a former President said, "We are confronted by a condition, not a theory." We might as well recognize the fact, and adjust ourselves to it. I do not like to pose as an alarmist; but it is a stubborn proposition we are up against, and I am afraid there are worse times in store for those who depend on alfalfa for their honey crop.

Grand Junction, Col., Jan. 17.

THE OUTLOOK FOR FUTURE CROPS OF ALFALFA HONEY.

Time of Cutting Dependent on Locality and the Kind of Stock to be Fed on the Hay.

BY D. A. M'LEAN.

This question, which now seems to be agitating the minds of a good many bee-keepers, especially those who live in the alfalfa region, while of the greatest importance to them does not seem to me to be one that is likely to be influenced very much by anything the bee-men may say or write about it. Still, I suppose it is best to know and face the facts in the case, whether they are pleasing or otherwise; and I fear I shall be obliged to add my testimony to the "otherwise" side of the column. However, I will premise what I have to offer by saying that this is one of those questions where the much-abused subject of "location" plays an important part. When I read the article of my friend Mr. Gill, located as he is only a few miles from me, I at first wondered a little at his writing as he did. Then I said to myself, "Lucky fellow! he lives in a locality where alfalfa is raised for a different purpose from what it is where I live." I live (unfortunately for me as a bee-keeper) in the very center of the great sheep-feeding country of Northern Colorado, and the fat lambs of Larimer County have become as well known and famous on the Chicago and other Eastern markets as have the canteloupes of Rocky Ford or the potatoes of Greeley. Every winter, within a radius of a few miles of this town, are fed from one hundred thousand to half a million lambs, as well as thousands of cattle, but a comparatively small number of horses. I think it safe to say that not ten per cent—probably not five—of the alfalfa raised is fed to horses. This being the case, the question whether early or late cut alfalfa makes the better hay for horses makes very little difference. It is not the horses the ranchman is thinking of when he cuts his alfalfa, but the lambs and cattle he thinks will eat the most of it.

I believe the facts to be about as follows: If grown for horses or milk cows, to get the most from the hay the alfalfa should be left standing until about all the heads are in bloom, and then quickly cut, cured, and stacked. But a number of circumstances will influence the value of the hay even then.

If left a few days too long the stems will be woody; or if the season has been rather wet the stems will be very large, and the hay coarse, in which case stock will eat only the leaves and waste much of the hay. If the alfalfa is grown for fattening sheep or for cattle that are being prepared for the feeding corrals of the corn-belt it should then be cut at the very commencement of bloom. At that stage the hay seems to contain the elements necessary for fattening in connection with the corn ration that is fed; and, what is of equal importance to the feeder, it is all eaten by the cattle, and a much larger proportion of it by the sheep.

I have in my possession, but can not place my hand upon it at this moment, the report on this subject, of the experiment station located in this city in connection with the State Agricultural College. My recollection is that it corresponds very closely with that from Nebraska, given in GLEANINGS for Jan. 1, and it would seem as though the feeders in this locality place considerable confidence in those experiments—or, more likely, with the majority if their own experience corroborates the report. At all events, the fact remains, which is the important consideration with us as bee-keepers, that a large proportion of the alfalfa-growers in this (Larimer) county do cut their alfalfa as soon as it has fairly begun to bloom. We can not look for our main honey-flow to begin here before the 20th of June, because not before the alfalfa blooms is there much other forage, and that is not in full bloom before that time. The ranchmen living on three sides of me, who grow hundreds of acres of alfalfa, make their arrangements to begin cutting by the 10th; others even earlier; and with the modern methods it requires but a very few days to cut a large average, so that, by the 20th, scarcely an uncut field can be found. There can be no doubt that this condition of things is having a great influence on the honey crop of this vicinity; and I see no prospect of any improvement, as each year the early cutting seems to grow in favor with feeders. Where, then, do we get the alfalfa honey that still comes from this locality? Well, as a matter of fact the ranchman does not cut *all* the alfalfa. In these large fields of from one hundred to several hundred acres, as great care is not exercised as where only a few acres are grown, and considerable is left standing along fences and ditches and in out-of-the-way places where it is not convenient to run the mower; so that the bees, by a little extra exertion, still find considerable forage.

But, as I said at first, this is a question of locality to a considerable extent. I know of a neighborhood only a few miles from here where the fields are left until they are purple with bloom, and the fragrance is most delightful, and the bees have only to step out of the front door to load themselves with all they can carry. Just why it is left so there I do not know.

The ideal location for bee-keepers in the

alfalfa region is where the ranchmen believe the most money is to be made in raising alfalfa seed. If that were the prevailing industry here the present average of alfalfa would support ten or probably twenty times the number of colonies of bees now here. As it is, the number already here are liable to fare rather slim unless conditions change; and the amount of alfalfa honey produced in this locality will not glut the markets of the world.

Fort Collins, Col.

[It should be stated that these two articles, one by Mr. Green and the other by Mr. McLean, were sent in *before* the bulletin from the Fort Collins station reached our office, but were overlooked till just now. It will be remembered that the extracts from it as given in our last issue were to the effect that alfalfa cut when in full bloom had more nutritive value in the aggregate than that cut earlier; and it is possible that the effect of this statement, now going out before the ranchmen, will have the effect of cutting the hay *late* rather than early, as has been the practice heretofore. We hope so; and let us do all we can to encourage them in late cutting.]

But I am free to confess that, when I went through the western country just preceding Mr. Green (two years ago), there seemed to be a tendency to cut early. The evidence from the stations and private individuals seems to be somewhat conflicting. But the experiments from the Colorado station at Fort Collins seem to be so full and complete, and I may say *decisive*, that it would seem as if the ranchmen, in Colorado at least, would look to their own interests and follow the advice given—to cut late. The bee-men of Colorado would do well to get the alfalfa bulletin referred to in the hands of their farmer neighbors. When the interests of the bee-keeper and of the ranchmen both call for late cutting it would seem as if the plant should be allowed to come into full bloom.—ED.]

BEES IN IDAHO.

Shingled Hives; a Brick Brood-chamber.

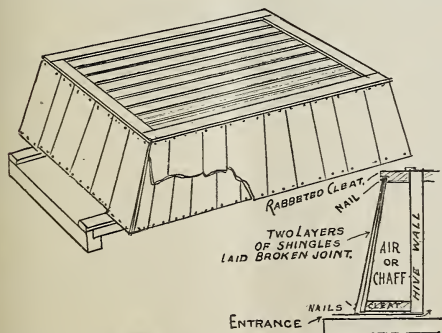
BY E. F. ATWATER.

Wishing to learn something of the early history of bee-keeping in Idaho I called, early in December, 1902, on Mr. McClellan, a veteran bee-keeper of Boise. Mr. McClellan has a comfortable and beautiful home among the elms and locusts, and so located that, in times past, the bees could fly quickly to and from the rich lands of the Boise Valley. Until recent years wild flowers abounded, and the bees seldom failed to return a fair surplus to their owner. Now, with the rapid growth of the city, the bee pasturage is fast disappearing, and the little honey that the bees store is badly mixed with honey-dew, which is sometimes so plentiful that it fairly rains from the trees,

covering sidewalks and pedestrians with a sticky varnish.

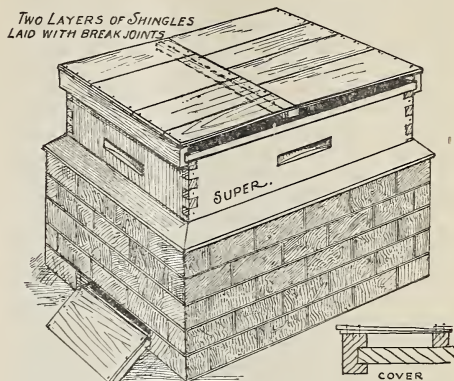
The first bees brought into the Boise Valley arrived early in the fifties, and came, it is believed, from California. These bees were brought in at an immense cost, and several thousand dollars' worth of increase was sold from them; but in a few years foul brood destroyed them to the last colony. Ten years later, in 1862 or '3, Mr. McClellan and Mr. Morse, another veteran beekeeper, sent to E. Kretchmer, then of Coburg, Iowa, for 16 colonies. These bees came part of the way by stage, and reached Boise without loss, at a cost of \$30.00 per colony. Swarms sold at extravagant prices for years, bringing from ten to thirty dollars each. In Mr. McClellan's apiary were several of those old hives, the identical ones that came in 1862. Some of them had apparently never been painted since that time, and yet were almost as good as new, though forty years old. They were square hives, probably the old American frame, and stenciled "The New System of Bee-keeping." For several years honey sold at 50 cents per lb.

In his apiary one sees at once that here is a bee-keeper of an inventive turn of mind. The first of his inventions that I will describe is the McClellan dead-air-space or chaff hives. Around the top of any single-walled hive a rabbetted strip is nailed, and around the bottom a plain strip $\frac{3}{8}$ inch thick. The air-space, or space for packing, may be of any thickness, from $\frac{3}{4}$ inch to 4 inches, according to the climate and preferences of the apiarist, by using strips of the proper width. On these strips, shingles, cut to the proper length, are nailed. When the first course is on, another



course is nailed over them, breaking joints, so as to exclude air and moisture. The sides and ends may slant a trifle outward, as shown in the cut, or be vertical, by regulating the width of the cleats to which the shingles are nailed. The upper ends of the shingles are nailed in the rabbet, so that the water can not soak into their upper ends. If chaff or other packing is desired, it should be put in place while the first course of shingles is being nailed. Such a hive as this, well painted, would surely outlast its owner.

Over in one corner of the McClellan apiary are several hives of such novelty that they may be of some interest to the readers of GLEANINGS. The brood-chambers are



enclosed in brick. Some might think that the bees would not prosper in such hives, but such is not the case. These brick hives are not very suitable for migratory beekeeping.

Over the super shown on the brick hive is the McClellan combined cover and shade-board. The old-style flat cover has a cleat nailed across the middle, and two layers of shingles are nailed over all, as shown in the cut.

All of the bees now in the Boise Valley (360,000 acres of irrigable land), with but few exceptions, are descended from those thirteen colonies of pure Italians that were sent in in 1862 or 63; yet in spite of the fact that almost no new blood has been introduced, these bees seem in no way inferior to any that I have been able to buy. They are large, hardy, reasonably gentle, excellent workers, and, with proper management, not excessive swarmers.

Boise, Idaho.

CARPET GRASS.

A Good Honey-plant and a Good Feed for Stock.

BY W. K. MORRISON.

Your beautiful illustration and bright description of that valuable honey-plant, carpet-grass, make me think we neglect our honey-bearing flora too much. Carpet-grass is a very appropriate name for this plant, seeing it forms a veritable carpet of verdure on what would otherwise be bare ground, the word "grass" being justified by the fact stock will eat it. To avoid confusion, however, it would probably be better to term it by its scientific name, *Lippia*, which is excellent and easily remembered. The species noticed by you in California is evidently *Lippia nodiflora*. If this is the case, then it is a plant of very wide distribution, for it is at home in nearly all parts of the West Indies. It is common around Cape Haytien, in Haiti; in Jamaica; in

Cuba; the Bahamas, and even in the Bermudas, where it has been introduced, and now is the leading honey-plant, its only rival being a closely related but different plant, *Lantana odorata*. There is another *Lippia replans* common in Antigua and some parts of the West Indies, which is equally good as a honey-plant, but has not the same wide distribution as *nodiflora*, so far as I am aware. The difference between the two, however, is very small. These *Lippias* are also common in South America, possibly extending as far south of the equator as Minnesota is north, so that they cover probably 90 degrees of latitude. Such a plant is worthy of more than passing notice, for the two are one to a bee-keeper. It is not a weed. Cattle graze it to some extent, and sheep and goats eat it readily—so much so that they might destroy it as a honey-plant. The further north it grows, the closer it hugs the ground, not unlike a creeping vine. Southward it assumes a more erect attitude, and the stems and leaves are coarse. It seems to me Florida bee-keepers should try the proverbial seven times to get carpet-grass established in the vast sandy wastes known as the piney woods of that State. I have an idea it would succeed there. If so, total failures of the Florida honey crop would pass as ancient history, for I can indorse all you say as to its honey-yielding capabilities, and in more than one sense it would prove a decided acquisition. It bears best in the hottest weather, and grows on the thinnest and poorest soils—points that will indicate where it will succeed. In my experience the honey is rather dark, but it is not strong or bitter to the taste; and coming in such profusion I overlooked its color.

If the Floridians succeed in naturalizing *Lippia* to their sandy wastes they will accomplish a lasting good. It would be a pleasure to traverse the aromatic woods with a carpet beneath one's feet, and stop the sliding-back sensation that the visitor experiences in traveling on foot through that State. If the California seed does not take well, perhaps Bahama seed would hold. In any case it is well worth an earnest effort. I have mentioned Florida, but no doubt there are other places where it would be very useful, as it is no ordinary honey-plant.

Formerly GLEANINGS had a department devoted to the study of honey-bearing flora. Why it was abandoned we have not been told; but it seems to me such a feature should be the most valuable and helpful in a bee-paper. Of what use are fine hives, industrious bees, and painstaking apiarists, if honey-flowers are not provided for the bees to feast over? I am strongly of the belief that many localities now considered almost worthless for apiarists may be made very productive if proper attention were given to the honey or nectar bearing flora. Some poor localities could be readily improved by a little attention from an apiarist who has paid close attention to this

phase of bee-keeping. It a big question full of possibilities. But is not so difficult as we are sometimes led to believe.

[I felt, at the time I described that carpet-grass, in our issue for Sept. 15th last, that it was a wonderful acquisition. The fact that it will continue to yield honey of such quantity and quality from the middle of May until frost in the fall, is a great point in its favor. I saw it only in Central California, in the driest country imaginable. Indeed, my friends in Sutter County said it would do best when there was but little or no rain. The honey from it in California is of a very fine quality, and I should say it would rank with any alfalfa or clover honey anywhere in the world. But the color of honey, even from the same plant, varies according to the locality. Alfalfa honey in Arizona, for example, is not as light-colored as that produced in Colorado; and I should imagine that the honey from carpet-grass would vary to the same degree, depending on whether it was grown in a temperate or torrid zone.

Your suggestion, that an effort be made to propagate this plant in Florida and other places, deserves more than passing notice; and GLEANINGS will offer its columns free to any who will advertise this seed, and agree to furnish it to those who desire to purchase. In the mean time, I suggest that Prof. Benton, if he can with the limited funds at his disposal in the Department of Agriculture at Washington, make an effort to procure the seed and see that the same is tested in various localities in the United States, particularly in Florida, where it would be a veritable God-send to the bee-keepers when other flora fails to yield the usual amount of nectar.

The Wessing Brothers, of Nicolaus, Cal., have made arrangements, I believe, to furnish it in small quantities at a stipulated price. Any one interested should write direct to them. In the mean time we should be glad to hear from any others who may have seed for sale. As I have stated, their notice will be inserted in these columns free of charge. It is not a good rule to offer free advertising; but here is something that deserves encouragement, and we should push it all we can. The fact that it will grow under such diverse conditions, in localities so widely separated, is a strong recommendation in its favor.

Speaking of its mat-like or carpet-like feeling under the foot, if one were wearied from a long tramp he could enjoy the luxury of a genuine spring bed by lying down on a plot of it. If, for example, the sandy wastes in Florida could be covered with such a mass of green verdure, with its tiny little flowers so redolent of precious sweetness, what a transformation would be made! Verily the desert would become a garden of Eden; and the happy hum of bees would gladden the hearts of many thousands of bee-keepers. Come, brethren, shall we help to make it come to pass?—ED.]

FORCED SWARMS.

Keep as Near Nature's Methods as Possible.

BY P. H. ELWOOD.

Before the introduction of the movable-comb hive, Capt. Hetherington forced all of his swarms by driving them out into an empty hive, and I very much doubt if this method of making forced swarms has been improved upon since. The driving process caused them to gorge themselves with honey, which seems to be quite necessary for wax secretion. It also caused them to adhere to a new location quite well when that was desired.

Ever since we first kept bees, thirty years ago, we have practiced forced swarming more or less. With our outyards we have been compelled to take the matter in our own hands; and we find that, the nearer we can keep to nature's methods, and at the same time accomplish our purposes, the better. Instead of driving, we find with movable combs that it is more convenient to shake, taking some pains to have the bees fill themselves with honey, and also to leave always enough bees with the brood to protect it. If making is deferred until they are about ready to swarm they often do swarm out after being made; but unless several are out together they usually return all right, and work with increased vigor for having had their spin in the air. If shaken into a large brood-nest they are less apt to fly out; and if the surplus receptacles are left off for a few days there will be no trouble from pollen being stored in sections. At the time of returning sections the size of the brood-nest may be adjusted to the size of the swarm. If not convenient to leave off the supers a sheet of comb will catch the bee-bread. Foundation or starters may be used at the option of the bee-keeper—more expense with foundation, more work with starters; for, with the best management, there will be quite a little drone comb to cut out and replace with worker. When a comb is used to catch the pollen we usually use foundation with it.

Some bee-keepers, after a week or ten days, increase the strength of the swarm by giving the combs a second shaking. While this has its advantages it also has its disadvantages; for so large an addition of strange bees or of bees expecting a young queen, often produces trouble, causing swarming or supersedure of the queen. It is also liable, unless great care is taken, to leave the young swarm too weak.

You ask if Capt. Hetherington and myself still practice dequeening. We do. By this method there is much less work, less mixing up by having swarms come out together; more honey; better-filled sections, and the colonies usually in better condition for winter. This method may seem to be entirely contrary to nature's methods but it is not. When a prime swarm issues, and the queen is lost from lack of vigor, as oft-

en happens, and the swarm returns, the colony is in the same condition that one of our dequeened swarms is. We, however, carry the matter a step further, and do not allow them to swarm again, but return the queen or another at about the same time they would naturally have a fertile queen of their own.

By the way, the making of forced swarms with queens that are failing, as mentioned above, is one of the most frequent causes of failure. With such queens they will sometimes swarm out at once, uniting with another swarm, or scattering to other hives, acting about like a queenless swarm. At other times nothing may be seen amiss but excessive drone-comb building and lack of vigorous work followed usually by supersedure of the queen.

While there is no method of making a forced swarm that will cause it to work with quite the vigor of a natural one, still to those who have outyards it becomes necessary to assume control of swarming.

Starkville, N. Y.

CHUNK COMB HONEY.

Questions Answered about It.

BY H. H. HYDE.

Mr. Root:—Owing to the many letters received since the appearance of my bulk-comb article in your issue for Jan. 1, I desire to add a few words of explanation.

The question has been asked me where the friction top cans may be secured. They may be had of the American Can Co. or of any of its agents; but call for their, 3, 6, and 12 lb. cans made for honey. They are a little larger than the regular $\frac{1}{4}$, $\frac{1}{2}$, and 1 gallon cans that they make for the syrup and canning trade. The two 60-lb. cans with 8-inch screw-tops are the regular two 60's for extracted honey; but instead of the $1\frac{1}{2}$ or $1\frac{3}{4}$ caps they have 8-inch screw-caps. These cans and cases are for shipping purposes mainly, but are all right also for retail trade at home.

In lieu of these, however, ordinary lard-pails are all right for home trade. Glass Mason jars are all right for home trade, and are, perhaps, the best for the home trade in that they show the honey to advantage.

The question has been asked me how the foundation is put in the frames. I will say that the frames we use, both regular Hoffman and the shallow Hoffmans of both the Ideal, or $4\frac{1}{2}$ depth, are made with the top-bars smooth on the under side. If your shallow frames come with a saw-kerf on the under side of the top-bars, simply use them upside down.

We fasten the foundation to these frames with a machine of our own invention, with a long plate kept hot with a distributor over a gasoline-lamp. However, the majority do not have these machines; but they can put the foundation on the top-bar with melted wax. Simply keep a can of wax

hot, and then use a spoon with which to pour a small quantity along the edge of the foundation, which is first placed squarely in the center of the top-bar.

The question has been asked me, "How about it when the extracted part candies?" Well, you will either have to dispose of the honey before it candies, or teach your customers that there is no finer dish on earth than a fine grade of candied bulk comb honey. Our Texas trade does not object to candied honey in the least, as it has learned that honey is really better in its candied state. I fully realize, however, that this propensity to candy will be one of the drawbacks to its production in the North, and so would advise all to go slowly until they have a ready market for it before cold weather, or until they can teach their customers that it is really better candied. Several of the parties writing me say that they have already experimented with the article in a small way, and are fully convinced that my statements are correct. I was not aware, until the receipt of these letters, that the bulk-comb idea had so thoroughly permeated the minds of Northern bee-keepers.

Before I close, let me ask all to call this product "bulk comb honey" in contradistinction to the miserable stuff sometimes put on the market, taken from box hives and logs, and called *chunk* honey. While the term "bulk comb" may convey an idea more of quantity than quality or kind, yet it is the best term we can use to be understood.

Floresville, Texas.

[Chunk comb honey is somewhat in disrepute, it is true, from the fact that it used to represent the product of the old box hive, and was a mixture of every thing—old combs, dead bees, pollen, propolis, wax-worms, light and dark honey—in fact, a little of every thing that may come from an old-fashioned box hive. Bulk comb honey, as Mr. Hyde would have us call it, represents an entirely different product—the very best table honey, being a mixture of the best extracted and the whitest comb honey. Some of my chance acquaintances have spoken in glowing terms of the "real honey" of "father's table," as if that in sections was manufactured. To argue with them that the latter is just as pure is almost a hopeless task. Sometimes I think we might just as well satisfy their whims by giving them what they will accept, and I do not know of any thing very much nicer than clean sparkling extracted honey, of good quality, having chunks of delicious comb honey mixed in it, of the same grade and quality. When such goods can be displayed to the consumer, and he *knows* it is all honey, he very likely would take it in preference to either comb or extracted separate.

A correspondent near Oakland, Cal., once went out and peddled some of his very white comb honey in tall sections among the

wealthy class. They would have none of it. Some of them were from "down east." What did he do? He went home and cut that honey out of the sections, and mixed with it a nice grade of extracted, and sent another man around with the goods. The same people accepted that at once. Why, that was honey, just like that used years ago on "father's table." Of course, they could easily sample it—something they could not do with the pearly-white comb honey in sections; and the mere taste of it was enough to assure them that it was all right. But our readers will remember our friend was disgusted with modern bee culture and modern traps. He was going to give the people what they asked for, and he did.—Ed.]

INSISTENCE, PERSISTENCE, SUCCESS.

An Interesting Incident in Peddling Bottled Honey.

BY PENN G. SNYDER.

In canvassing about to find new customers for my honey I ran across a case that I thought might help some other poor down-trodden bee-man in the same pursuit.

I have my honey put up in pound bottles with paraffine over top, and capped with a white paper on which I have my trademark.

To begin with, I first knocked at the door and an old lady of about 70 or thereabouts opened it. I began by saying, "I am looking for customers for honey. I have my own bees; extract my own honey; fill my own bottles as you see them, and sell it for the small price of 15 cts. a pound. I can guarantee it to be pure, for I have seen it from the hive to bottle."

The lady said, "You can't sell me liquid honey. I have been fooled too many times. I like comb honey better, anyhow."

She was about to shut the door when I said, "Now, I have my name stamped on each bottle, and I can't give a better guarantee."

She said, "I do not know you, and have never heard of you or your honey—where do you come from, anyhow?"

I started to explain where I was located, and she knew the place thoroughly, as she had lived near the property for about thirty years.

I said, "Now I should like you to try this, as I am sure you will want more."

She said she would take it; but when I told her I charged 2 cts. extra for the bottle, which I refunded on its return, she said, "Uh!—well, I guess I don't want it."

I said, "Well, I do not think you could buy honey at as low a price elsewhere. I am selling it for 15 cts. As I am compelled to buy the bottles I sell them for the same price they cost me—2 cts. apiece."

Still she didn't want any. By this time I was getting disheartened, but was interested enough to make her take it if it was possible, so I said:

"Well, you don't seem to think the honey

is as I represent it to be. Now, I know it is, and I wish to convince you of the fact."

She replied, by saying, "Well, I gave over the household duties several years ago, for my time is nearly run, so it is now out of my jurisdiction, and I guess I won't have it."

If I had stopped then I should have left with the bottle of honey and not the wished-for 17 cents. I was holding on by my teeth and nails, and I continued to do so, the more she persisted in not wanting it. I told her that I felt sure that, if she thought the article was good, and would recommend it to the one who did the buying, she would quickly buy it.

She consented to do this, and went, and came back saying that they would not want it.

I was about to give up, but I still had one more chance. My locker still held one shot which I kept as a last reserve, and I now fired it in this manner:

"Now, as I know my goods I am not afraid of a proof or any test."

I took out my penknife, cut the string, took off my trademark, removed the paraffine, and requested the lady to get me a teaspoon, which she did. I told her to taste it; and if it was not as represented I would not say another word.

She did as I asked, and said, "That *does* taste good." After taking another sip, "Well, I will take it."

Now, this goes to show what perseverance will do, and by what a small margin success is separated from failure. It may also show some beginner not to give up as long as he can hold the attention of his possible buyer.

Morton, Pa.

SWARMING-CELLS VERSUS THOSE REARED IN QUEENLESS COLONIES.

Strong or Weak Colonies for Cell-building.

BY H. G. QUIRIN.

We have read with interest the various articles published in the bee journals, under the above caption. There appears to exist quite a difference in opinion, especially betwixt Alley and Dr. Gallup, the former claiming that as good queens can be reared by a quart or so of bees (and even less, we believe) as by a full colony under the swarming impulse. From our own experience we came to the conclusion that it is entirely immaterial whether the cells are built by bees preparing to swarm or by bees which have been made queenless; the method used in rearing the cells has nothing whatever to do with the quality of the queens, as it is not the method, after all, which produces the cells, but it is the conditions brought about by the method.

There are certain conditions absolutely necessary for the rearing of cells, which will produce good queens, and regardless of what method is used; and should any one

of these conditions fail to be present, poor queens will be the result.

In the first place, the larva from which the queen or cell is started must not be too old; in the second place, the embryo must be given a sufficient amount of food, or royal jelly, and the cells built and hatched in the proper temperature. Moisture, also, has an important bearing on the matter. If there is any missing link in queen-rearing, then we would say that that missing link is the knack of being able to be sure of having all the above conditions present.

In reading Dr. Gallup's articles one might be tempted to think that he would have us believe that cells built under the swarming impulse have some imponderable influence entering into their composition, which we are unable to make harmonize with our past experience.

The method used, and which is made a success with one man, may prove an utter failure in the hands of another, for the simple reason that the one (perhaps through long experience) is capable of having and arranging all the details necessary for the rearing of good cells, or, in other words, he has learned by practice how to have all the conditions necessary present.

It is possible for a quart of bees to raise one and perhaps two cells, which will produce good queens; but a strong colony preparing to swarm will raise a larger number of good queens.

Parkertown, O.

[If we could have all the conditions named present, I have no doubt that cells from a queenless colony would be as good as those built under the swarming impulse. The trouble is. it is difficult to get *all* the conditions just the same; and the average bee-keeper will come a long way short of it. I think we may generally say that the queens from swarming-cells are, as a rule, better than those from a colony made queenless; or, in other words, natural cells are better than forced cells. We believe we can rear just as good queens in queenless colonies at Medina; but to bring about the conditions that exist during swarming time, the colony must be fed a little every day, otherwise the young larva will not be lavishly fed—one of the necessary conditions which you name. But there are times when robbers are very bad, and when it is quite difficult to give the small daily feeds without getting bees stirred up. At such times it is not an easy matter to get first-class cells.]

While I believe we *can* raise just as good cells under one condition as the other, yet I can not help feeling that Dr. Gallup's contention is, in the main, correct when applied to the average bee-keeper; and therefore I urge the inexperienced, as a rule, who desire to rear only a few queens, to raise them during the swarming time, when there will be an abundance of swarming-cells from choice queens. This requires no knack, and little or no experience, because

nature supplies naturally all the *necessary* conditions far better than the average bee-keeper can do it. If one has good cells the rest is easy.

Our own experience in the matter of rearing cells is to the effect that a nucleus, or a quart of bees, if you please, other conditions being equal, would not do as good work in cell-building as a strong colony. Why? The latter is equipped with bees of all ages — young nurse-bees and field-bees — when the quart of bees may be supplied with nothing but nurse-bees or nothing but field-bees, depending on the way the division was made. Then, moreover, it is difficult for a small cluster to keep the center of its brood-nest as warm as the center of the brood-nest in a strong colony can be kept; and this is another condition that I regard as important.—Ed.]

SOME AFTER-THOUGHTS FROM ONE WHO USES THE DANZENBAKER HIVE SUCCESSFULLY.

Closed End vs. Open End Frames.

BY J. W. FAY.

This last year has been one of experimenting with me in learning how to keep bees for profit, so I will inform you of some things I did during the summer.

I use the Danzenbaker hive, because trial with it against the Langstroth and the eight-frame Dovetailed led me to believe it was the best for me to adopt for comb honey.

I used the frames to some extent bottom side up in the brood-chambers, to get them filled full of comb. I found about the first thing the bees would do would be to build brace-comb all over the frames before filling them up, and that caused me too much trouble.

I took ten frames, closed ends, and put top-bars on the bottoms so the bee-space would be the same either side up, and found this worked to perfection.

I did not notice any difference in the queen laying in a frame, whether it was right side up or not. When I reversed the frames I would uncap any honey at the top of the frame, and the bees would carry it up, and the queen would deposit eggs in nearly every cell to the bottom, and also fill up the cells with eggs at top (formerly bottom), nearly as fast as the comb was drawn out. This makes a frame reversible, without any trouble in handling.

I had two weak colonies, both Italians, last spring. I did not want to lose either queen, so I put a queen-excluding honey-board between the two hives and put both on one stand, having alighting-board with small entrance between the hives. The queens seemed at once to take on courage, and very soon built up the largest colony in the apiary. Neither made preparations to swarm, and this colony made me 150½ lbs. of section (4x5) surplus honey; 106 lbs. No.1.

I did not get a pound from 34 other colonies in the apiary; 20 of them were spring court.

The bees in the upper story of the double swarm built their comb to the bottom of the brood-frames.

After trying the open and closed end frames in the Danz. hive I prefer the closed end, and use 9 frames, with follower both sides.

I did not have any natural swarms. This year as soon as the colony built queen-cells, I would set a new hive on the old stand; remove from parent colony a card of brood with the queen on, and place in new hive, and take the other frames and shake the bees off in front of the new hive, and they would go to work like any natural swarm I ever hived. I set the parent hive L. shape from old stand, and in about five days I set it by the side of a new colony, and left for 12 days; then in the middle of a warm day I set it on a new stand. This made my new colony good for honey if there was any.

I experimented with Danz. and other hives by tiering up, and I am satisfied, for my locality, that two hives, Danz. size, doubled up, are worth more than the same if set out single for surplus honey. A single hive can not give a prolific queen room enough. I shall try two hives and have strong colonies, if I have to work two queens to get the bees.

I should like to know why it would not be well to have Danz. frames with top and bottom bar for the same, or bottom-bar the same as the top, making it a perfect reversible frame. I am satisfied it is all right for the brood-chamber, and I see no objection to using them for extracted honey. If necessary the top could be marked, "Use the comb the same side up for honey."

If there were a groove on top of the bodies of the Danz. hive so they would go down ¼ inch, making it air-tight, it would be better when tiering up, provided the bees would not put on too much propolis. My experiments run to two things—strong colonies, and tight hives to retain the bee heat; then with the honey-flow the chance for honey is good.

I believe in the Danz. hive; and after handling goods from four factories, Root's goods are *good goods*, and well fitted—cut out with sharp tools, and of good material. This covers a great deal, and I expect for myself to use their goods.

Woodmere, Mich.

[We had thought at one time of making the bottom-bar the same as the top-bar, and we can do it yet if the users of Danzenbaker hives call for it. As the frame is now, one can have narrow top-bars by simply reversing the frames, if he so desires. But the narrow thin bottom-bar gives one distinct advantage, in that it permits one to get a fair idea of the brood-nest by looking up under the frames, and at the same time not touch one. A wide bottom-bar shuts off the view to a great extent.—Ed.]

THE HOME OF THE HONEY-BEES.

BY HARRY LATHROP.

In the old town of Medina,
In the good old Buckeye State,
Close nestling in the suburbs,
By the city's very gate,
Is another busy city,
There shaded by the trees,
You ask its name? I answer,
'Tis "The Home of the Honey Bees."
And there are others in that city,
Besides the bees as well;
There are many busy workers;
Now listen while I tell.
There is "A. I. Root," the veteran;
Whose persistence long ago
Was the very "Root" and center
Of the business, you should know.
Now this "Root" had won a maiden,
Her eyes were clear and blue,
A helpful wife and partner,
Whose heart was always true.
As a tree by waters planted,
And watered from above,
This man took root in "Ernest,"
With purpose born of love;
And branches spread around him,
Of the trees he loved so well,
With little "Rootlets" coming,
In his heart and home to dwell.
God's blessing rested on him,
A veteran long ago,
Although he signed "a novice,"
The bee-men all well know
That he lead in every effort,
Improvement fast to bring,
And ne'er secured a patent
Upon a single thing.
In keeping of the bees
And making of the hives,
With planting of the trees,
So ordered they their lives.
The business grew apace,
Large buildings then were made,
And in that cosy space
Foundations firm were laid.
The bee- had pretty queens,
The hives had sweetest honey,
The girls, while in their teens,
Helped earn some honest money.
There's much of love and beauty still
Within that busy mart,
And th' honey-bees among the trees
Still play an active part.
There are roots of trees and trees with roots,
And trees from roots all free;
But the root that bears the choicest fruit
Is the only root for me.
A great and useful business grew
From that one little plant;
I would describe if I had words,
But then, you know, I can't.
This plant, well "Rooted," has taken "Root,"
And now it bears a tree
Whose product goes to all the earth,
To aid the little bee.

THE BEE-KEEPER'S LIFE.

BY HARRY LATHROP.

The beauty of life for men who farm
Will not compare with that of ours
Who find among the hives of bees a charm
Of sweetness drawn from many flowers.
It ought to make us better far
Than swine-herds might expect to be,
Unless our spirits prove to be at war
With Nature as her charms we see.
These living wonders make us feel
How ignorant and small we are,
And bring us down before the Lord to kneel,
Lest we his perfect work should mar.
Then let us reverence in each heart
The works of God we see while here,
And labor with a will to do our part
As faith and duty make it clear.

SWARTHMORE'S SCRAPER.

A Tool for Freeing the Propolis, and Brace and Burr Comb from the Top-bars of Brood and Extracting-Frames at One Stroke, Without Danger of Hacking the Wood.

BY SWARTHMORE.

The scraper is simply a piece of hardened steel, ground along its upper edge like a shear, and notched at one end to the depth of one inch to permit scraping and separating the wax from the propolis in an automatic manner. It has two holes near its lower edge for bolting the blade firmly to the bench, uncapping-trough, or tank.

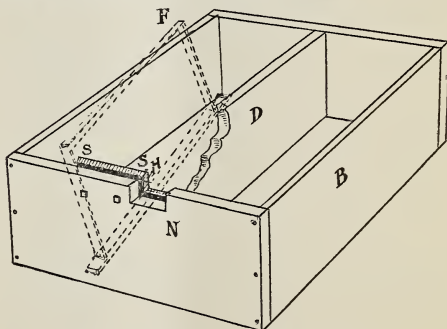


From S to S is the scraping surface for removing propolis from top of bars.

N, notch; H, scraping surface for removing wax from sides of bars.

B, B, holes for bolting blade to bench.

The ground edge of the blade is indicated by shaded lines, and, when attached to the bench ready for use, the shear edge of the scraper from S to S is visible. Only a portion of the bench, box, or tank is cut away or notched to match the notch N in the scraper, so as to permit scraping the wax and burr-comb from the sides of top-bars without turning the frames.



SWARTHMORE'S SCRAPER ATTACHED.

B, box for holding scrapings.

D, division-board for separating wax from propolis.

S, scraper bolted in place.

F, frame in position for scraping.

N, notch for scraping sides of bars.

To scrape a frame, grasp it in both hands at either end of the top-bar, close to the side-bars, and draw it firmly across the shear edge of the scraper at S, which removes the propolis from the top of the bar and drops it into its proper compartment to the left of the division-board.

Now pass the comb into the notch N, and draw it in such a manner that the side of the top-bar comes in contact with the shear edge of the blade at H (see first drawing), which will remove all burr or brace combs

and deposit them in a special compartment at the right of the division-board D, where they can be quickly gathered for melting into wax.

Now remove the frame and clean the other end of propolis; then slide it into the notch and scrape the remaining wax from the side of the bar. Thus with three or four quick strokes a frame may be cleaned top and bottom, and, what is more, the bulk of the wax is at once separated from the refuse—a recommendation in itself.

When extracting I take in a set of eight frames at a time; and after throwing out the honey I run them over the scraper, and all are quickly rendered clean and nice for rapid handling. A putty-knife is useful to keep the scraping-blade free of wax. Brood-combs can be scraped fairly well without dislodging all the bees, which is quite a saving in time.

When scraping the brood-frame in the spring, fasten the scraper outside somewhere in a central location, or have it portable by nailing the box to the wheelbarrow.

CAN BUTTERFLIES DESTROY THE BLOSSOM OF ALFALFA?

A Few Corrections.

BY H. W. SMITHKONS.

My Jan. 1st GLEANINGS came yesterday, and I want to write you my appreciation of its neat, artistic, and up-to-date appearance. I am more than pleased with the change. I have read GLEANINGS for 18 years, and have subscribed for it for five years more to come, so you see I take an interest in it. I usually turn first to the editorials, because I like the sensible treatment you give to subjects that are sometimes queerly handled by the correspondents. Keep on with your footnotes.

Your answer on p. 8 to Dr. Miller's Straw on that item about an umbilical cord in bees is worth one year's subscription. I know it is difficult to keep all absurdities and errors out of a magazine that has many contributors; but for the sake of new subscribers who might become prejudiced against a good paper, I should like to call your attention to one or two in the last issue. In Stenog's department, the item about the mole is away off. If he were familiar with moles he would not have copied that fiction from the *Revue*. A mole has a short tail; rudimentary, inconspicuous eyes; short, thick, silky fur, the color of a maltese cat; and large hand-like paws, and it lives wholly in the ground. What Stenog's picking describes is the white-bellied wood-mouse. I know them well, for they frequently occupy the boxes which I have all over the farm for bluebird's nests. They have large shoe-buttonlike eyes, and are very spry. They naturally live in the woods, and gather linden and other seeds; but they also do much damage in corn-shocks and bee-hives.

On p. 11 you speak of the butterflies on alfalfa, and say you were told they "eat the blossom." If you had stopped to remember that butterflies have no mouth-parts to eat, like grasshoppers, which often eat off clover-blossoms, but that they have only a tiny slender tongue for licking or sucking up sweets, I don't think you would have believed that report.

Say—did you ever try honey for tirene in a punctured bicycle-tire? Our boys once tried it in a pinch, and now they use nothing else.

I started with bees (one hive) 18 years ago, at the age of 14, and have made them pay well every year. I have 60 colonies, all in ten-frame chaff hives, and raise only fancy comb and extracted honey for the home market at Lorain. I had nearly a ton this year from 35 colonies, and am just about sold out. I hope that Texas "bulk honey" business will never extend up here, as it would only open the way for adulterators. I raise fancy comb from such colonies as are able to produce it, and extracted from the weaker, and put the latter on the market in ½-lb. tumblers. As I run the apiary as a side issue with a large fruit-farm I need to simplify the operations as much as possible; therefore the ten-frame chaff hives were allowed to swarm once. I shall try the "shook" swarms next season.

North Amherst, O., Jan. 8.

[I am very glad to have any thing that appears in GLEANINGS, that is incorrect from a practical or scientific point of view, set right. Some one else, whom I do not now recall, mentioned the fact that the butterfly could not eat the blossoms of alfalfa, as it had no mouth parts. I am not an entomologist, and do not know; but I assume from what you say that you are well posted, and I therefore accept your correction with thanks.

But butterflies undoubtedly do damage of some kind in alfalfa-blossoms in some regions in Arizona, for some years they swarm in countless thousands over the fields of it. The blossoms seem to blight or wither, and somehow I got the impression that this withering was due to eating the blossoms. Perhaps Mr. Will Chambers, who gave the information to me, will enlighten us further.

You have my sincere thanks for your very kind words regarding my work on the journal.

No, I never tried honey in leaky bicycle-tires; but I am sure it would work satisfactorily. When we were doing bicycle-repairing in our machine-shop, we used to pay \$2.00 a quart for tirene. I afterward discovered that the stuff was nothing more nor less than finely pulverized plumbago, molasses, and a mixture of corn meal or bran. These last ingredients were doubtless put in to disguise the fact that the stuff was really molasses that cost a cent or two a quart, and for which we paid \$2.00. Honey has a quality that syrup does not possess,

in that it will dry and form a sort of mucilaginous surface, and I am sure it would make a most excellent tirene.

In regard to moles, Stenog at my elbow says, "Perhaps there are species of them in France that tally exactly with the description of the French writer. I was simply giving a translation, and do not hold myself responsible for what the writer said."—Ed.]



WAS IT FOUL BROOD?

This summer I found what I thought was foul brood. A hive had three or four dozen sunken cappings with dead larvæ in a putrid condition, some in open cells, and some would be ropy and string out on a twig or spear of grass. This fall, a month or six weeks later, I examined the colony. There was brood on both sides of two frames, about the size of a man's hand; and not a sign of foul brood was found. The cappings were bulged out, and brood was in a healthy condition. Should I burn that deceitful colony? In the spring I also found similar stands, only not so much dead brood. I looked through them two or three times during the summer, and found them all right. Do bees ever make a cleaning-up of this foul matter when in a putrid condition? If they do, perhaps I caught them in this cleaning, and will find them foul-broody later on. An experienced bee-man here told me foul brood was never found better after once getting among the bees. Is this the case? Would foundation be dangerous to use, made from wax melted from foul-broody combs? Could you furnish me a book treating on the cure of foul brood?

GEO. R. MIDDLETON.

Wagerman, Idaho, Nov. 10.

[I think there is no doubt that the colony you describe had foul brood. It is not an uncommon occurrence for an affected colony to clean out the combs, and for a time at least the brood will appear to be healthy. But my experience is that such a colony, if left to its own individual efforts, will every now and then develop the disease. The trouble will continue, and sometimes continue for several years. While foul brood may never get the upper hand of that colony, the presence of the disease in it is a constant menace to that whole apiary. There is something strange in it, but some colonies seem to have the power to resist the disease, notwithstanding it will break out every now and then. But that same virus, if carried to *another* hive, would mean the al-

most immediate destruction of the colony. I would not burn the hive, but I would burn the combs, put the bees on frames of foundation, and put them in a clean hive, back on the stand. The hive itself I would char out by spraying it on the inside with coal-oil and lighting it. While it may not be necessary to disinfect the hive, I certainly would be on the safe side, if that is the only colony you have in the yard.—Ed.]

GETTING BEES OUT OF INACCESSIBLE PLACES.

Could you tell me the best way to get a swarm of bees out of the siding of a house, and save the swarm? They went in there last August. When is the best time to take them out?

G. R. HENDRICK.

Cora, Kan., Jan. 27, 1903.

[Mr. McDonald describes in this issue a very satisfactory method of getting bees out of a tree or inclosure. But if you wish to do the work up quickly, and at the same time get the honey, blow considerable smoke into the entrance or where the bees get into the house; then with a cold-chisel pry off the siding. If you do your work carefully you can get the bees and combs out, and then you can replace the siding without very much damage to the house. A little putty and a coat of paint would make it look as well as ever.—Ed.]

THE CARNIOLAN-ITALIAN CROSS.

In response to a call for information concerning the Carniolan-Italian cross, I will say I have in one of my apiaries, side by side, five colonies in ten-frame hives, representatives of their respective strains, each having characteristics of its strain, and I could not say which I prefer.

First in the row is the three-banded long tongue, every bee alike. Their superior does not exist. Next, imported Carniolan just ended her third season; next the strain golden Italian; then two Carniolan-Italians.

It was exceedingly interesting to study closely the nature of each during the three last seasons. Early this spring the three first mentioned started off with the Carniolan the strongest, the three-banded second, and golden third. For a time neither of them seemed to increase rapidly (owing to unfavorable spring). Then all at once the Carniolans began to increase rapidly (just seemed to bloom), it was not long until I gave the other two each a frame of brood and bees from them, to start them going, because it was getting late, if I expected any honey. You could see the improvement in the two very quickly.

The latter part of May I noticed queen-cells in my Carniolan colony; and, knowing their willingness to swarm, I quickly changed their minds by making two nuclei, when it was time for mating, placed entrance-guards in front of all hives except the three-banded, and I now have two true to name, Carniolan-Italian cross. Their bees resemble the three-banded, though somewhat

darker, and bands more narrow, with characteristics of Carniolans, gentle to the extreme, boil over when you open the hive; and breeders—never had better; was no time until these two nuclei were as strong as any in the lot. The only thing that prevents their becoming popular in the hands of novices, and apiarists having many colonies, is their swarming propensity; however, I must say I give them close attention, and seem to catch them in the nick of time, as they never swarmed for me.

In the fall of 1901 I presented a friend of mine with one of my fine Carniolans, because he was taken with their gentleness; but last August he did away with them. He said, "That colony swarmed only seven times in less than three months," so it seems I averted their swarming impulse, and my friend failed to understand.

My Carniolan Italians will always have my closest attention. I find they winter better, and breed up better in the spring.

I helped strengthen my weaker colonies with frames of brood and bees from them.

I often thought if I could only combine the good qualifications of these different strains, I would have a race that might be christened "Eureka" bees.

Cincinnati, O.

FRED W. MUTH.

DISPOSING OF UNFINISHED SECTIONS.

I have about 60 unfinished 1-lb. sections. Some are half full of honey, and some are nearly finished, but have no honey in them. Now, what I wanted to do was to put those that contained honey over my bees in the spring so that the bees would carry this old honey into the brood-chamber. In this way I thought of saving the bees the trouble of remaking the section. Would this be practical? or would last year's honey be dangerous to the bees or young brood?

In case I couldn't use them as mentioned, could I use them in mating queens as practiced by Swarthmore, page 19, Jan. 1?

E. H. LILIAN.

Mascoutah, Ill., Jan. 20, 1903.

[You could put the unfinished sections on top of the brood nest in the spring; but they should be covered with cushions or packing material. The bees will be likely to go up into the sections, and make that their brood-nest, because that would be the warmest part of the hive. The sections would be badly soiled, and I would not, therefore, recommend this manner of cleaning out the unfinished sections. The better way would be to stack them up in some hive outdoors; contract the entrance down to just what one bee can go through at a time. The first few warm days you have, the bees will rob out this hive; but be sure to keep the entrance down very small or else it will make a big excitement in the bee-yard. The sections will be cleaned out without any soiling, and without any great disturbance in the yard.]

You might use them as recommended on page 19 of our Jan. 1st issue.—ED.]

HOW TO RENDER OUT WAX FROM PROPOLIS.

Save up all the scrapings of sections, frames, and other fixings, until the season is over; then put the mess in an old tin pail; pour water on until an inch or more deep over the stuff; put it on the stove and heat very nearly to boiling: stir frequently, and the wax will come to the top, and the propolis sink to the bottom. Set it off the stove and let it cool until the wax hardens. Lift it off, then warm up again until the propolis is quite soft, when it can be poured into some dish to form a cake so it will be convenient to handle. Have the molding-dish quite wet, or grease it a little, to keep the stuff from sticking. Save your pail for another season, as it will be very hard to get it clean, as the stuff sticks very closely.

Greene, Ia.

G. R. SHIRER.

BOILED HONEY FOR DYSPEPTICS.

I can not use honey *ordinarily* unless it is cooked—the fresher the honey, the more it requires. Boiled till a dark amber, like syrup, suits me best. I know many people so constituted. Last year I fixed a lot for a man who had denied himself all honey for 20 years.

The best cure for the severe pain of honey sickness is warm cow's milk—fresh from the cow.

C. L.

I have 20 colonies of bees. The hive I use takes 9 frames $12\frac{1}{2} \times 10\frac{3}{4}$. Is that large enough for a brood-chamber? Is it advisable to raise three or four frames of brood to the surplus-chamber before preparation is made to swarm, placing perforated division-boards between?

I. D. OLVER.

Bobcaygle, Ont., Jan. 26.

[A brood-chamber such as you have mentioned is large enough, or what would be considered standard *capacity*, although not standard in *size*. We would not advise you to commence with an odd-sized frame like this, for the reason that your supplies would cost you a good deal more than standard goods.]

It is advisable to raise all the brood you possibly can before the swarming season. You can scarcely raise too much.—ED.]

I should like to know which is the better pasture for bees—crimson clover or sweet clover. Is alfalfa better than either of these?

E. L. BLAKE.

Grand Tower, Ill., Dec. 20.

[As between crimson and sweet clover, I am of the opinion that the former, on an equal area and under equal conditions, will produce much more honey. But the fact is, sweet clover, because it is so widely scattered, and because there is so little of the crimson, produces actually more honey. Alfalfa I should consider best in a dry climate—altogether the best of the three; but in a humid climate, or what is known as the rain-belt, crimson or sweet clover would produce more honey.—ED.]

FORMALINE GAS FOR KILLING FOUL BROOD.

Mr. Root:—You may recollect that, when in Denver, I was talking to you about killing the foul-brood germ by fumigating it with formaline gas, by Prof. Harrison's method. I mentioned to you that I would experiment with this fumigating cure just as soon as I arrived home. With the assistance of a bee-keeper, I began operations immediately. This gentleman had a hive infected with foul brood. We took the infected frames from the hive and placed the bees in another hive. We then fumigated it with the formaline gas, and, when disinfected, replaced the infected frames in the old hive. We then shook the bees back on to the original frames. The result was, that the colony cleaned up the combs nicely, and a few days later the combs were filled with eggs, and, later, larvæ, the latter being perfectly white, and no signs of foul brood since in the colony. Later in the season I tried this method for friends who had colonies afflicted in the same manner. As the season became too late for brood-rearing I could not ascertain any results. About three weeks ago I sent two frames, which had been badly infected (but which I had previously fumigated, to kill the spores of foul brood) to Prof. Dr. Guyer, of the University of Cincinnati. I requested him to endeavor to restore life to the foul brood, which he promised to try to do. A few days later I sent him another frame infected with foul brood (this frame I did not fumigate). To-day, two weeks after, I visited the professor again, and he reported that he had made about 20 trials, all told. The frame *not fumigated*, he says flourishes with foul brood. To the other frames, which were *fumigated* by this process, he said it was impossible to restore any signs of life. He still has part of the *fumigated* frames, which he will experiment with further, and will then report results. I will acquaint you further with any future results we may secure.

C. H. W. WEBER.

Cincinnati, O., Nov. 22.

[This is interesting and valuable, and I hope those who are in a position to do so will give the new drug a trial.—Ed.]

WHY HONEY IS CAPPED WHITER FROM FORCED SWARMS; IS IT BEST TO GIVE A NEW SWARM A FRAME OF BROOD?

Dr. Miller says in *Stray Straws*, Nov. 1, "Honey is capped whiter, is a claim made for forced swarms, p. 864; and it is made in such a way as to be understood as meaning whiter than with natural swarms. It is capped whiter than in a hive with black combs, but no whiter than in a hive with a natural swarm."

I said, "Honey is capped whiter. As you well know, you get whiter-capped sections over newly built combs." I meant you get whiter-capped honey by forcing the swarms at the beginning of a flow than by

running the old colonies for comb honey. Of course, the honey is no whiter than from natural swarms, provided the natural swarm is hived on foundation or starters. Probably Dr. M. isn't aware of the fact that a great many *bee-keepers* hive swarms on old black combs, and expect a gilt-edged article.

I find that a great many of my swarms hived on starters and run for comb honey were rather light, as we had no fall flow, and I had to feed some; but I am consoled, as I had nearly all they made in nice white sections which I wholesaled at 15 cts. per section.

In another *Straw* Dr. M. says, "Shook swarms are being pretty thoroughly shaken up just now; and while the shaking is going on it would be well if the question could be settled as to whether it is best or not to have a frame of brood given to the swarms." I settled that question to my satisfaction several years ago. The worst absconding I ever had was when I would always give a frame of eggs and brood. I quit doing so, and would give plenty of room, shade the hive, also give plenty of ventilation, and I hardly ever have a swarm leave the hive.

It isn't natural for bees to find brood in their new home—that is what they have left. They find conditions partly as they left them, so they proceed to construct cells and prepare to swarm, provided they don't leave at once. If a comb be given, and the rest of the frames contain starters, if they stay they will build more drone comb than if all frames contained starters.

J. T. HAIRSTON.

Sulina, I. T., Nov. 15.

BROODLESS COLONIES.

I have two colonies of bees that have neither brood nor eggs. They are new colonies that I got this season, and both have queens but no brood, although they had plenty in September. They have lots of honey, three or four frames being full.

As I am a beginner I should like to know if these colonies will be safe for winter in this condition; and if not, please state if they need new queens, and whether tested queens would be necessary.

Navarre, O., Nov. 18. Wm. H. SCOTT.

[You will not find brood in a normal colony in your locality in November. The queens are probably all right and should be left alone.—Ed.]

DOES IT PAY TO USE FULL SHEETS OF FOUNDATION IN THE BROOD-NEST?

I will state my experience. I had one swarm of bees come out about the middle of July, three years ago, and I filled the eight frames with half-sheets of foundation, and the next day a swarm came out nearly the same size, and I filled the eight frames with full sheets of foundation, and in one week I put a super on each of those hives,

and in the fall I found the one that I filled with half sheets of foundation had just-filled the hive full, and nothing in the super; and the hive that I filled full of foundation, I found the hive full, and the super full of honey and 24 sections nicely capped over; so I consider that the extra outlay of 25 cts. for the extra half of the 8 sheets of foundation brought me in return \$3.84 worth of honey at 16 cts. per lb.; and since that time I have always filled the frames in the brood-chambers with full sheets of foundation, no matter when or what time of the year they came out, and I have always considered that it paid me. C. K. CARTER.

Eagle Grove, Ga., Dec. 7.

[While one swallow does not make a summer, there have been quite a number of reports to the same effect as the one given. One of the best bee-keepers in Ohio, Mr. Chalon Fowls, of Oberlin, even goes so far as to say that he can afford to make his own hives out of drygoods boxes, but he can not afford to go without full sheets of foundation. Circumstances and methods of management alter cases; and it is pretty hard to lay down a rule that will apply in all cases; but with ordinary management full sheets give better results than half or quarter sheets.—Ed.]

BAD-SMELLING HONEY IN THE HIVE.

I have a hive of bees in my cellar, which has started to cut the comb from the frames, and it stinks badly from the honey they got. The honey is white and nice, and it is a new swarm and hive. There have been two bee-keepers to look at it, but could not tell the cause, so I thought I would write and see what you think about it.

JOSEPH FINSTAD.

Esdaile, Wis., Dec. 15.

[I am unable to suggest what the trouble may be. To be on the safe side, it might be well for you to send a sample of the comb to your foul-brood inspector, N. E. France, of Platteville, Wis. Even if the comb is not diseased, Mr. France, being a practical bee-keeper, would be able, probably, to suggest the cause of the odor. In the mean time I might say that the bees might have been gathering, from some source, honey which, before it is thoroughly ripened, is foul-smelling.—Ed.]

A QUESTION OF NOMENCLATURE.

In Europe we are called "bee-masters;" in the East, "bee-keepers;" in the West, "bee-herders," while here in the mines we are known as "bee experts." Who can coin a word that will mean the man whose bees keep him, and place him in a separate class from those who simply "keep" bees? Shake, shook, shocked, brushed, artificial, forced, or suppressed swarms is not in it, in comparison. We are trying to frame an act to stop effectually the sale of adulterated honey in California; and unless the act is weakened by an amendment of some com-

mission-house association we will make the name "Pure California Honey" the standard.

E. H. SCHAEFFLE.

Murphys, Cal., Dec. 18.

[You are right. We have no specific term by which we may designate the specialist bee-keeper—the one who makes his living by his bees. Mr. Hutchinson has come as near to it as anybody by the use of the word "specialist bee-keeper." I do not see but we shall have to use a lot of circumlocutions; for it is better to be too "wordy" than to be too brief and lack clearness.—Ed.]

MUTILATED BEES IN THE CELLAR.

I have thirty colonies of bees in my cellar, apparently doing very well. However, there are many bees all cut to pieces—heads, wings, legs, and bodies lying on the alighting-board. I can not see any signs of mice in the cellar. What is the cause of it? If it is mice, will they injure the colonies? Several hives were affected the same way last winter. Do you think it is vermin that are killing the bees or eating the dead ones? The hives are raised one inch from the bottom-board.

SETH DOAN.

Molesworth, Ont., Feb. 4.

[From your description it seems very plain to us that either mice or rats are working among your bees. You would do well to put out poison or set traps to get them out, otherwise they may be the means of ruining or destroying your colonies.—Ed.]

A METHOD FOR KILLING YELLOW-JACKETS.

Close the hive at night, and leave it closed till 8 in the morning. In the evening set a can-lid filled about half full of powdered brimstone on the alighting-board in front of the hive. One yellow-jacket will take home enough to kill all of his colony.

J. CASSELMAN.

Peck, Idaho, Oct. 4, 1902.

Will it do to Italianize bees at this season of the year?

B. GRANTHAM.

Morrison, Miss., Nov. 5.

[I see no reason why, in your locality, you could not Italianize very nicely at that season of the year. Indeed, I should assume that it would be the very best time. But Italianizing here in the North should generally be practiced in late summer or in the fall, or whenever the main honey-flow is past and when there is little honey coming in from natural sources.—Ed.]

1. Is there any way to make a queen lay in the winter, and is it profitable?

2. Would it be advantageous to have a hive so constructed that the 1-lb. honey-boxes could be set down in the hive proper?

EDWARD DUBOIS.

Providence, R. I., Nov. 11.

[No to both questions.—Ed.]

SNOW AT ENTRANCES ; BEE-CELLARS.

I am a reader of GLEANINGS, and would like to ask you a few questions. 1. Does the snow that blows and stops the entrances of the hives do any harm?

2. Do bees ever get any pollen from bass-wood?

I want to put a bee-cellar under the kitchen of my house. I am going to dig it 7 feet deep, and put up another wall. This will make two walls. Will the noise over them disturb them, or would you ceil overhead and pack with sawdust? How large should it be for 75 or 80 colonies? How large a ventilator would you have come out through the wall at the door, if any? It registered 10 above zero outdoors, and 29 under the house, with a hole two feet square in the wall. R. H. SWARTZ.

Naples, N. Y.

[1. No, not generally. Snow does no harm around the entrances unless it melts and then freezes, making a hard crust over the entrances, or, worse still, freezing them up entirely. In our locality we never pay any attention to snow. On the contrary we like to have it banked around the hives.

2. I am not sure, but I think they do.

Make your cellar as large as possible. There will be no danger of your getting it too large for 75 or 80 colonies. The cubic capacity of the cellar should be large in proportion to the number of colonies it will actually hold so far as room is concerned. I would not have any ventilator in the door. Open and close the door at night when it is warm outside. Nor would I have any windows in the cellar if you desire to make it suitable for bees. Windows cause too much of a variation in temperature.—ED.]

HIVE-BODIES; WHAT DEPTH IS PREFERABLE, JUMBO, LANGSTROTH, OR DANZENBAKER?

I wish you would tell us the result of your trial of Jumbo hives. The last I saw in regard to them you said they were "boomers;" but I believe you did not tell us how they compare with the eight-frame hives in regard to yield of honey. Unless I can run on to some second-hand hives I shall have to get some new ones for another summer, and I am at a standstill to know what size to get. I think I should like the Danzenbaker for the first season; but when the bees come to breed up the following spring I am afraid the hives would be too small unless doubled up. Could you tell us what is the practice of Mr. Vernon Burt and others who are using this particular hive? Where one does not wish to double up hive-bodies in the spring, would not the regular ten-frame Dovetail be preferable? E. B. WESTON.

Auburn, N. Y.

[The answer to your question depends much on locality. If you lived in Cuba or in Texas, I might advise you to use Jumbo hives. While personally I like such hives, the frames are deeper than regular Lang-

stroth, and can not be used with standard hives. All things considered for your locality, I would advise the ten-frame Langstroth hive, providing *extracted honey* were the object. If you desire to produce *comb honey*, I would recommend first the Danzenbaker, then next the eight-frame Dovetailed Langstroth hive. If the Danzenbaker brood-nest is too small part of the season, it can be easily doubled up in the breeding season, and then, just before the honey-flow, contracted to one brood-chamber. If you do not like to double up, the ten-frame would be better, perhaps; but it is not nearly so good a hive for comb honey as the Danzenbaker. Just what Mr. Vernon Burt's practice is, I do not know. He doubles up with some colonies, possibly; but the Danzenbaker brood nest is no smaller in cubic capacity than the eight-frame Dovetailed hive, and it is not ordinarily the practice to double up the Dovetailed. If you desire to produce comb honey, and your market calls for deep sections, I would recommend to you the Danzenbaker system throughout.—ED.]

1. How soon, after making a forced swarm, can I introduce a fertile queen to the parent stock?

2. Are your red-clover queens Italian?

3. Does cotton-plant secrete much honey? and what grade would you class it?

Oenaville, Tex. J. W. GRIFFIN.

[1. You can do so immediately, but you should make sure that all cells and virgin queens, if any, are disposed of. In ordinary practice there will probably be no cells, and you could introduce a new queen in the parent colony the same or the next day; that is, the queen could be caged on the same day that the colony received the shaking.

2. Our red-clover queens are reared from Italian stock. The old original red-clover mother came from Italy.

3. Yes, some honey, but just how much I do not know. While it is regarded as a white honey, the flavor is a little off for table use. That we have handled had to go to the manufacturers. Cotton honey has a tendency to foam—just why, no one knows; and that makes it rather objectionable for bottling or for any table use.—ED.]

Why not advise adjusting a bicycle-pump for testing honey-barrels before waxing, in place of the lungs? Few men are such good blowers, except when it comes to blowing their own horn. C. F. HAEGER.

Hill City, Tenn., Dec. 17.

[A bicycle-pump would do very nicely; but the rubber tubing should be mounted in a cork just large enough to fit the bung-hole of the barrel; then when the barrel is pumped full of air—enough so that you can hear a hissing around any possible leak—let the cork and pump stand in the bung, then proceed to drive the hoops down until

the hissing ceases. Pump in more air, and listen for more hissing, and again drive down the hoops as before.

A foot pump would be a little more serviceable than the ordinary hand pump, but either could be used.

It may be well to state that barrels should never be tested for leakage with water—that is, those designed to receive honey for shipment. Use nothing but dry air. Even if there is a leak, the water will cause the wood to swell, and close it; then if the barrel be filled with honey the honey will absorb the water in the staves, and then the old original leak will appear when the staves are dried out again. In other words, a barrel that would be suitable for shipping water or other liquids would not be suitable for shipping honey.—Ed.]

THE DANZENBAKER HIVE FOR WINTER.

1. I used this summer for the first time the Danz. hive. They look so shallow I feared there might be trouble in wintering in them. I have cases to put around them, and allow for two inches of planer shavings all around the hives, and four inches on top of the frames. Please tell me if they need any thing more.

2. I have a few queens that I raised in three-frame nuclei. I used an eight-frame Langstroth hive, put a half-inch partition in it, and have a nucleus on each side. I should like to keep the queens over winter. Can I do so? and if so, how?

A. J. KILGORE.

Bowling Green, O., Oct. 6.

[1. No. You have given all the protection that they naturally require.

2. Yes, you can winter two nuclei in one hive outdoors. While it can be done, the chances of success will be very much better by putting all such hives containing two little clusters in a dark dry cellar having a uniform temperature throughout the winter. Two bunches of bees are never as good for wintering as the same number in one cluster.—Ed.]

TROPICAL NOTES FROM THE WEST INDIES; ITALIAN BEES LIKED BEST IN TRINIDAD.

For several months past we have had all we could do to keep our bees alive on account of the wet season and the scarcity of honey-flowers. About the middle of October some improvement set in, and honey began to make its appearance rapidly. It was, however, very dark in color, and slightly strong and bitter. One of our strongest hives was given a frame of sections, and filled about two-thirds of the space, when the inevitable swarm went off, and collection ceased for the time being. Even this honey was poor and dark in color. In new combs at date, fine clear and well-flavored honey is making its appearance. In a few months' time, when the log-wood comes in flower, we shall have the finest honey of the season, equaling the produce of any country in the world.

We have had three swarms from our 14 hives of black bees, but none from our 6 Italians. The latter are collecting honey much faster than the black bees, and of better quality. I find the Italians do not produce drones at the same rate as the black bees, which fact probably accounts for the difficulty of getting them to replace the stronger bee. We are not experts in Trinidad, and should like to know how to increase the output of drones. At the present time any drone-cells are being filled with honey, so that it would appear useless to introduce drone foundation for the purpose of raising the required number of gentlemen.

Imported Italian queens take readily to a few combs of the black bees, and rapidly make strong colonies. We are now able to procure these at a cheap rate from a neighboring colony in the West Indies. What a funny word that "neighboring" is! In this instance our "neighbor" is nearly 2000 miles away. The common and popular idea of the West Indies is that the islands are in a bunch. What a mistake that is can be recognized only by making a tour through them. Not a bad idea to get away from the northern winter, and is now being followed by those who can afford the time and money. The cost of a trip is very reasonable and comfortable. Steamers from New York sail about every two weeks.

The industry of bee-keeping is progressing slowly in most of the islands; but in Trinidad the popularity and paying character of cacao cultivation somewhat calls away the attention of the people from the smaller industries.

J. H. H.

Trinidad, Nov. 5.

[You can increase the number of drones by putting drone comb in some of your best breeding colonies.—Ed.]

BEEES DYING IN WINTER QUARTERS.

What is the best way to feed bees in the winter? I have two hives which I think need looking after.

SUBSCRIBER.

[Give the bees hard rock candy, laying sticks of it on the clusters of bees. If you do not know how to make it, get your baker, or some one who understands candy-making, to make you a clear crystal candy, sticks of it to be brittle as glass, out of pure granulated sugar. Don't use any flavoring. Some use Good candy. This is made by mixing powdered sugar and honey into a stiff dough. Almost any one can make that, but the dry granules are apt to rattle down between the brood-combs.—Ed.]

A COMBINED BEE-BRUSH AND SCRAPING-KNIFE.

I have for the past year been using a Cogshall broom and knife combined that proved so effective that perhaps some of the readers of GLEANINGS would find it to their advantage to make one also, as it is a very simple affair. The blade is a long one, tapering down to a point. I tied it to the broom-handle with only a cord, but it came

off occasionally, so it will have to be fastened on some better way. Perhaps some kind of fastener on the broom could be devised in which the blades could fit. The blade should, of course, be strong, have one sharp edge for cutting and scraping, and should project out six or eight inches from the broom-handle. Try this and you will find you can pry a lid off a hive, pry a comb out, and brush the bees off in a hurry. San Antonio, Tex. A. H. KNOLLE.

[It is no doubt advisable, where possible, to have two tools combined in one. It is a nuisance to have to carry along a box or basket with a variety of implements; and if one can make one, in addition to the smoker, do all the work, he is that much ahead.—Ed.]

A NOVEL WAY OF GETTING BEES OUT OF A BEE-TREE WITHOUT CUTTING IT.

Mr. Root:—Referring to the inquiry on p. 945, in your November 15th issue, of C. MacDonald, Jr., relative to a method of getting bees from a tree, I desire to give you a plan by which I secured a fine large colony from a cottonwood-tree last summer. The idea may not be new to more experienced apiarists; but to me it was entirely original and successful.

In this particular instance, however, the bee-exit was quite close to the ground. I commenced by inserting into the cavity a three-foot section of one-inch hose pipe. I then covered it and the exit about a foot deep with mud and sand, and packed it down. Finally the bees found their way out of the hose pipe, and, after more or less confusion, into the cavity again. I allowed the pipe to remain as it was for three or four days, to accustom the bees to running through it, at the end of which time I took an empty hive, bored an inch auger-hole in the back of it, and inserted therein the end of the pipe. After two or three days more of confusion on the part of the bees, and when they had again learned the new entrance (that is, through the hive), I removed the hive long enough to attach a bee-trap to the hole formerly bored in the hive, and put it back in position, with the hose this time entering the hole in the *bee-trap*. I then hung a comb of brood, together with full sheets of foundation, in the hive, and inserted therein a caged queen. In a short time I again visited it and found the queen released, the bees very busy in comb-building, and the greater portion, as I imagined, of the bees that had been in the tree taking up housekeeping in the hive.

I was afraid to remove the hive and open up the old entrance for fear the bees would desert their new home, so it has remained on this stand ever since, and will remain until later, when I will take it away. In the mean time they have built up a strong colony, and a hive full of winter stores, but have made no surplus.

I assume, of course, that a few bees remained in the tree, and by this time have

either died of starvation or old age; but I succeeded in acquiring a good strong colony from what, at first, seemed to be a hopeless job, as in this instance also I was not allowed to molest the tree in any way.

I presume that, in Mr. MacDonald's case, the same plan could be adopted by having several short joints of hose pipe with screw ends, stopping the bee-exit securely around the pipe with cement or something else, and by degrees screwing the short sections on to the pipe until he got the bees entering it near the ground, when the rest would be easy. J. A. MACDONALD.

Denver, Col., Nov. 27.

[Your plan is all right—only you secured no honey from the tree, but that would not be a large item probably.—Ed.]

GETTING BEES OUT OF BEE-TREES WITHOUT CUTTING.

Mr. MacDonald might secure honey from that tree as I do from bees in the wall of my house. Take your usual hive and fill with frames having full sheets of foundation. Put a bee-escape on the hole in the tree so they will have to come out in the hole. You will saw out just under lid in the back corner of the hive. Then to get out they will have to crawl down over those sheets of wax, and enough will spot the entrance to guide all. After a day or two they will go to work, and later a super can be used. About August draw your hive away from the tree a few inches, and put block back in the hole, leaving it independent of the tree. Then if you will supply them with young eggs and brood the chances are they will requeen, so you can move them, leaving the tree to operate on another year. F. R. FOUCH.

Parma, Idaho.

A REMEDY FOR FERTILE WORKERS.

I find that when, either by carelessness or oversight, a colony becomes queenless long enough to permit a fertile or laying worker to usurp the place of a queen, the colony refuses to accept either a cell or a queen, laying or virgin. But my experience here has invariably been that, as soon as the fertile worker commences to lay, the bees do their best to rear a queen from the eggs deposited by her. My remedy is to change the larva, and I am always rewarded by the young queen reared by themselves being accepted. I do not know what becomes of the usurper, but probably she receives short notice to quit. Perhaps my locality may have something to do with it. If, however, this should prove to be useful to some other bee-keeper I shall feel amply rewarded. C. M. AARONS.

Jeremie, Hayti, West Indies.

BEES BITING OFF THE CELLS OF COMBS.

1. During the last year I have found two hives in our apiary, in which the bees began to bite off the cells of combs about four years old. I have thought that the bees did

so only because the combs were old, and probably therefore were unfit for brood. Please tell me how old combs of the brood-nest should be allowed to become before being removable? When are they too old?

2. What shall I do to get the best result in rearing, now and then, some good queens, for my own use? What season is the best to do this, and must or should bees be fed with something while they are engaged in rearing queens? I find that some hives are far superior to others in gathering honey, and I suppose that this depends most on the queen. Now, if I take a comb with fresh brood with the bees thereon and place them in a small box adapted to the purpose, do you think the bees will or can rear a good queen, provided those eggs are from a good queen?

ALPHONSE VEITH.

St. Meinrad, Ind.

[1. I do not know why bees should bite off the cells of the comb unless the frames are spaced too closely. The age of a comb would cut no figure in the matter. I don't know when a comb is too old for use. The late R. Wilkin, and I believe Doolittle, said they had some 30 years old, and they were still doing good service in brood-rearing. I do not think there is any thing in the statement that brood-cells grow smaller; for bees reared out of either old or new comb, with the same queen, are the same size.

2. If you desire only a few queens I would advise you to take swarming-cells during the swarming season—those that are at least 9 days old—and insert them in nuclei, or, perhaps, better still, insert them in queen-cell protectors and then in a colony from which the queen has just been killed. If the cell is given to the colony at the height of the honey season, swarming will be checked, at least for the time being.

No, I would not advise taking a comb with young brood, with bees thereon, and putting them in a small box for the purpose of rearing queens. The bees would go to work, of course, and rear cells; but a small nucleus will not do as good work, as a rule, as a strong colony.—Ed.]

IS THE FORCED-SWARM METHOD OF NO VALUE TO PRODUCERS OF EXTRACTED HONEY?

I have never worked bees for comb honey. I am interested only in extracting. Mr. Stachelhausen says, p. 893, that, when he produces extracted honey, he does not depend on forced swarms. He has other ways, some of them preferable. Now, if all this forced-swarm writing in GLEANINGS is not for my class of bee-keepers, will you please tell me how to inform myself about these other methods he speaks of?

FREDERICK DUBOIS.

Sanibel, Florida, Dec. 15.

[Forced swarming is, perhaps, an unnecessary procedure in the production of extracted honey. The method Mr. Stachelhausen refers to related, probably, to hav-

ing large hives or two small ones, one on top of the other. A large brood-nest, whether in one or two stories, extracted every week or ten days, will not be inclined to cast a swarm. Perhaps a better plan, instead of taking off the honey too early, is to raise the super that is filled with honey, and put under it a super of empty combs. In the mean time, the bees in the super above will have an opportunity to ripen the honey thoroughly, after which it may be extracted. There are other methods, but they are more thoroughly explained in the text-books than I can do it here.—Ed.]

OLD COMB VS. NEW; DO QUEENS PREFER EITHER, OR IS IT ONLY A WHIM OR NOTION OF DIFFERENT QUEENS?

It is strange the differences we bee-keepers find, or seem to find, in the manner of work of our bees. For instance, Dr. Miller has for years been stating that, in his experience, queens prefer old comb, and yet there are contradictions of this, and you yourself are inclined to side against him. Now, if you watch this matter next season, as you propose, you will find, if your queens act as do Dr. Miller's and my own, that they most decidedly prefer old comb to new. I have had queens, both in nuclei and full colonies, skip a bright new comb until they had filled the old black combs on either side with eggs, and this not once but many times, and every season. Is it lack of observation with others, or a peculiarity of Dr. Miller's and my own queens? I am satisfied that locality is accountable for many differences, but scarcely for one like this.

C. S. HAMS.

Holly Hill, Fla., Dec. 16.

[The apparent conflict of opinion in this matter, I think, is explained very satisfactorily on page 105, Feb. 1.—Ed.]

HOW TO KEEP OLD TRANSFERRED COMBS IN A NEW FRAME WITHOUT THE USE OF WIRE OR STRING.

I have never seen (in print) my way of fastening combs when transferred to frames. It's easy. First prepare a bundle of nice smooth corn or cane stalks, about 9 inches long, to reach across the frames. The top joints, which are $\frac{3}{8}$ to $\frac{1}{2}$ inch in diameter, are all right. Larger pieces may be split. Now take a strip of pine, $\frac{1}{2}$ inch wide, and just long enough to reach across the inside of the bottom-board. It should be just as thick as the side rails, so as to form a rest for the middle of the bottom-bar of each frame. This will prevent heavy combs from sagging till fastened by bees.

When the hive-body is placed on the bottom, the first comb fitted in the frame may be placed at the side of the hive with a cornstalk or two between them. If frames are of the self-spacing kind, after fitting the combs they may be all set in with sufficient cornstalks between to keep each comb in place. Then put in a division-board and

crowd the frames up snug and tight. When the bees have fastened the combs you may draw out the cornstalks, tip the hive back, and take out the comb-rest.

I see you often fasten combs with twine. Dr. Miller prefers fine wire. If I wanted to be contrary I'd use cornstalks.

Chambersville, Pa. J. P. LYTLE.

[As I understand your method, you simply use cornstalks set down between the frames to keep the combs from tumbling against each other. Somehow this seems a little crude to me, yet I have no doubt it answers the purpose. Cornstalks vary in size, and uniformity of diameter would be an important requisite to hold the combs exactly in the center of the frames. Ordinarily it does not pay to transfer any comb into a frame unless it can be in one, solid piece, and cut large enough to make a snug fit against the top and bottom bar and end-bars. Such a comb does not need staying up. In these days of foundation, and a desire to avoid drone comb, it does not pay to use little bits of comb, and fit them against other pieces to make one solid comb. One had far better use a comb-starter fastened against the top-bar, and have them built out into worker comb during the season of brood-rearing.—ED.]

THE NEVER SWARM COLONY BETTER THAN THE FORCED SWARM; THREE GOOD RULES.

The subject of prevention of swarming, as discussed in GLEANINGS, has been interesting. The methods of forcing or shaking swarms have all been practiced here with various success; but we agree with Dr. Miller that the colonies kept at home with no notion of swarming are *best* for honey-producing. I have several colonies, with five years' record, in that line. If swarming could not be prevented I would quit bee-keeping, as high trees and other necessary work prevent close watching of bees. My methods of work have been gleaned from the workers reported in GLEANINGS, and I am still getting new hints to make the work easier each year.

I have three good rules to offer: 1. Mr. Boardman's rule, "Keep all colonies *strong*." 2. Allow no sealed honey or drone comb in the brood-nest during June (from Mr. Doolittle). 3. Careful spacing and arrangement of brood during fruit-bloom, giving room for queen-supers as needed.

These apply to Ohio. In Florida seasons are different.

NELLIE ADAMS.

Perryburg, O., Nov. 24.

BROOD IN THE BROOD-NEST FOR FORCED SWARMS.

In J. E. Crane's article on made swarms I notice the words in *italics* against giving any brood lest they swarm out or start queen-cells, and then swarm. Hemusthave a Carniolan cross in his stock. I know they may swarm with a brood-chamber only

partly filled; but I never had a colony with a year-old queen start cells or swarm when I have left them two or three frames of honey, eggs, and brood. If it is liable to happen it could be cured by giving frames of sealed and hatching brood to give the queen laying space at the start to keep her out of the super without using an excluder.

F. DANZENBAKER.

Washington, D. C.

CAUSE OF EARLY SWARMING.

What do you think was the cause of so much early swarming in this vicinity? Before they would go up into the supers and go to work they would swarm again just as soon as they could get ready. This was a general thing all over our section of the country.

The forced swarms did not act that way. They all filled their cases in fine shape so far as tried.

S. F. MILLER.

North Manchester, Ind., Dec. 22.

[A light honey-flow, continued day after day, is more productive of swarming than a heavy honey-flow. It seems to be the rule in Texas, when a small amount of honey is coming in every day, that swarming will be the rule of the day; but just as soon as the nectar comes in with a rush, swarming eases up; and that is true to some extent in almost all parts of the United States.

You have given a good testimonial in favor of forced swarms. If your honey-flow starts off very lightly, I would by all means treat all your colonies according to the forced-swarm plan.—ED.]

A GLUCOSE DEALER FINED \$25 AND COSTS.

I hand you a clipping from the *Evening News*, of Tacoma, regarding prosecution under food act.

R. W. TAYNTON.

Tacoma, Wash., Sept. 11.

The monthly report of Food and Dairy Commissioner E. A. McDonald for August, shows but one prosecution, as follows: Sample, Honey; brand, Wild Rose; manufacturer, Pacific Coast Syrup Co., San Francisco; tried before Judge George, King County; dealer, Star Grocery Co., Seattle; fine, \$25 and costs; analysis—ash, 7 per cent; sucrose, 9.27 per cent; reducing sugar, 61.08 per cent; direct polarization plus 11.2 degrees; direct polarization at 24 degrees minus 1 degree.

[This is good. A few more prosecutions of like nature would stop the nefarious business.—ED.]

IS IT PICKLED BROOD?

Last spring I had a hive in which nearly all the other brood died, and the bees would remove it from time to time. It seemed to die just before being ready to seal up, to the young bee gnawing out of the cell. First it was white; later it would turn brown. There was no odor, neither was it ropy. Later on in the summer I transferred them to foundation, but I guess I was not careful enough, and it did not stop it, although not as bad. I think it will be the same in the spring. After the bees in the old hive had all hatched that would, I put

them on foundation, and it was a success. I see a few cells in some other hives, also in hives two miles away from mine. I thought it must be pickled brood.

I have 12 fine combs with honey and pollen, and I should like to save them. Do you know of any way by which it can be done?

ALBION R. LEHR.

Hallowell, Me., Dec. 13.

[The symptoms you describe tally very closely with those given for pickled brood. I should incline to the opinion that is what it is.—ED.]

A CORRECTION; NOT A FEEDER, BUT A WINTER COVER.

In GLEANINGS for Jan. 15, p. 64, editor's comments on the Ferry feeder and cover combined, you say the idea is all right, but a little expensive. You also say, "From my standpoint, Doolittle's division board feeder would secure to you all the advantages of the feeder illustrated. It has the features of warmth, and, being in the form of a division-board, it can be inserted right down in the brood-nest where there is the greatest heat. It will hold three times the amount of feed."

You have described accurately the advantages of a division-board feeder, and all the qualities you describe are correct; and for fall feeding for a colony to store in its hive for the winter you are correct; but even then a Miller feeder is still better. You have not made a comparison of any qualities or purpose that the Ferry feeder possesses. It is not intended for the purposes you have described. It is intended for a winter cover to protect the bees from the cold and storms of the winter; and at the same time, should you ever desire in the spring to stimulate the colony a little, you have this advantage of the Simplicity feeder in such a position that you can feed and not remove the cover as you would by the way you would in using the division-board feeder.

H. S. FERRY.

Mount Vernon, N. Y., Jan. 28.

WHAT ONE OF THE VETERANS THINKS OF THE RAMBLER.

Allow me to say that no publication devoted to apiculture ever contained such sad news as did GLEANINGS of Jan. 15, in the announcement of the death of J. H. Martin. In his death, one of the brightest lights in bee literature has gone out. I wish I could find proper words to express my sorrow and regrets at his sudden death. Rambler has visited me twice, and the more I saw of him and read his writings the better I liked and respected him. How we shall all miss him in GLEANINGS!

HENRY ALLEY.

Wenham, Mass., Jan. 26.

A DESERVED TRIBUTE TO THE RAMBLER.

Through long acquaintance with the writings of Mr. J. H. Martin I learned to love him, and feel that we, as a fraternity, will sadly miss his noble sentiments and

innocent mirth from the pages of GLEANINGS. I could not realize I loved him so until the sad news of his death came like a blow upon us. Soon A. I., Dr. Miller, Doolittle, and others of the "old guard" must, according to nature, pass to the other side. Dear old Rambler! how consoling to think of him enjoying the society of the Savior, and of the sweet young wife whose early death made his life so pathetic! Peace to his soul and honor to his name. May the ties of friendship tighten more closely about us is the desire of the Rambler's friend,

Odin, Mo., Jan. 27. D. B. THOMAS.

BINDING BACK NUMBERS OF GLEANINGS.

Several have recommended wire nails for binding GLEANINGS. I think I have a much better way to keep them securely bound. Materials required, a straight awl, a large darning-needle, and a strong cord. Wrapping-twine will do if you double it. Take 6 or 8 copies at a time, and punch 3 holes near the back—one near the top, one at the middle, and one at the bottom. When all the copies are punched, first pass the needle downward through the middle hole, then upward through the top-hole, then downward through the bottom-hole, and lastly upward through the middle-hole; draw up snug, and tie the ends across the cord, passing from top to bottom hole. It makes a spring-back binding. In punching the second lot of papers, use one of the first lot as a gauge, in order to have the holes jibe.

D. I. WAGAR.

Flat Rock, Mich., Jan. 21.

A BROOD-CHAMBER ARRANGED WITH CLEATED FENCE SEPARATORS BETWEEN BROOD-FRAMES.

I have a suggestion to offer for your consideration. Why not, when you arrange a brood-chamber for the reception of a colony, adopt a plan analogous to the one you practice when you prepare a super with fences dividing the rows of sections from each other? Brood-frames with starters would, in this case, take the places of the rows of sections in their section-holders, while fences of suitable dimensions, with spaces wide enough to allow the queen to pass through, set alternately between the brood-frames, would keep them apart, and thus, it might be expected, or at least hoped, would prevent the building of combs so crooked or irregular as to interfere with the ready manipulation of the frames. If upon trial it were found that these fences thus arranged in the brood-chamber served a similar purpose as well as do the fences now used in the supers, the wiring of comb foundation would no longer be necessary; while a narrow strip of foundation as a starter would probably serve as well as or even better than a whole sheet. As soon as the fences would have fulfilled their purpose they could be removed. Only a few, therefore, would be needed.

As a substitute for the no-drip honey-

crates, I have been using plain crates made honey-proof by dropping a teaspoonful of hot melted paraffine in one corner, and then by tilting it around causing the paraffine to flow all about the outer margin of the bottom-board of the crate in the angle between it and the sides and ends. A little excelsior is used to keep the sections a trifle off the bottom when packing.

W. O. EASTWOOD.

Whitby, Ont., Jan. 23.

[Fences could be used in the brood-nests when only starters are used to good advantage. Possibly here is an idea worth developing, for it would save quite an expense in foundation. We will try to give the matter a test this summer.

The hot paraffine poured into the bottom of the shipping-case would not be as good as the paper trays nor as cheap.—Ed.]

IF BEES ARE DOING WELL OUTDOORS IN SINGLE-WALLED HIVES, JAN. 1, WILL IT PAY TO MOVE THEM IN?

We have 39 colonies; 17 of these we placed in winter quarters shortly after Thanksgiving, and the remainder are outdoors. It is our first wintering indoors. The apartment is perhaps 12×20, off a spacious hog-house; however, the bees are the only occupants. It is well ventilated and dry, but is not protected from cold from below by any wall or any thing of that sort. The building is much colder than a purposely constructed bee-cellar. We removed the last of the bottom-boards from those indoors a few days ago, and all seem to be doing finely thus far. Also those outdoors seem to be experiencing no difficulties. With one exception all of the colonies have gone into winter quarters with heavy stores. Under these conditions would you kindly advise us if, at this time, it would be advisable, under the circumstances, to move outdoor colonies?

There is a tight plank floor in the house. None are chaff hives. We scattered chaff on the floor, then laid 2×4 scantling on edge on chaff, then removed bottom-boards and placed hives on this. In such a building would you consider it advisable to remove bottom-boards? We do not find any thing in GLEANINGS that covers this particular case.)

THOMAS BLAKELY.

Mason, Mich., Dec. 29.

[I infer from your description that your winter repository is an upground building. If it is not also frost-proof it would not be a very desirable place to winter bees. The temperature in a repository should not go below 35 degrees, and better not below 40 nor much above 55. The difficulty with an upground repository, such as you describe, is that it is subject to great extremes of temperature. In warm weather it might be up to 60 or 70 inside, with the result that the bees would be very uneasy, and fly out and die. In very cold weather the temperature might go down within a few degrees

of what it is outside. Where the bees are subject to such extremes of temperature it is far better to have them outdoors; and, if I mistake not, you will find that those in the building will not winter nearly as well as those outside.—Ed.]

TRANSFERRING; FORMING NUCLEI FROM ONE COLONY IN ORDER TO INCREASE RAPIDLY.

I wish to ask for a little information. I have a colony of bees and the A B C of Bee Culture. I am making some hives on the American plan, with closed-end frames hanging on a ¼-inch strip nailed near the top. Last year, July 1, I got about a quart of bees; and by feeding lightly I raised a large colony, filling a box hive 12½×15, by 24 deep, inside measure, within 6 inches of the bottom, and put them in the cellar where, apparently, they are doing finely now. I wish to increase next summer (providing they come out all right) to the extreme limit of my ability. If I transfer them by placing a hive on top of the box hive, as described in the A B C book, and allowing them to go above at their leisure, can I take away two or three frames of brood, and form nuclei as fast as the queen fills them, leaving enough to hatch to keep the old colony full, and get queens from you by ordering a few days ahead as I need them during the summer? I prefer this method; for if I should fail in my first attempt I would have the old colony still to try again. I simply wish to raise bees next summer; and how long a notice would you generally require to get a queen here? and wouldn't it be good policy to give my old colony full sheets of foundation to aid them in starting early so as to be in full blast by June 1?

GEO. H. PLACE.

Omaha, Neb., Jan. 15.

[Closed-ends frames are all right, but we would advise you to adopt some standard size. The American or Gallup frames—that is, frames nearly square—are very little used now, and hence we would advise you to adopt the Langstroth pattern. The saving in the cost of supplies, if you have to buy them, will be considerable of an item. While you can make increase in the manner you outline, a far better way would be to transfer by the Heddon plan, as described in the A B C book, then you can make a division of the colony afterward, much more satisfactorily. I do not see how you could fail by the Heddon method of transferring.

I would advise the use of full sheets of foundation—that is, if you proceed on the plan you describe.—Ed.]

A COLONY WHOSE QUEEN WAS THREE YEARS OLD, AND DOES NOT SWARM.

I have in my possession a colony of bees in which the queen is over three years old. Said colony has not swarmed since it was put into the hive in 1899. She kept her colony very strong all last season, and went

into winter quarters strong last fall. The strangest thing in my mind about these bees is that I looked for drones at different times during last spring and summer, and could not find any, either in the hive or among the unhatched brood.

W. W. BROCKUNIER.

Sewickley, Pa., Jan. 5.

[If the bees are on combs built from full sheets of foundation, it is scarcely to be wondered at that you do not find drones in the hive. If there are drone-cells, and no drones reared, it is a little remarkable. It has been said that the presence of a large number of drones in a hive is conducive to swarming. The converse of this claim might be that the very absence of them may indicate that the bees have no notion of swarming. Such a queen should be used as a breeder, if you have not already done so. A queen whose bees are not inclined to swarm, or do not swarm at all, are just the kind of bees we are looking after. Dr. C. C. Miller, of Marengo, Ill., would no doubt be glad to stock up from her. May be if you "work" him right you might get big money out of him for a few queens.—ED.]

CELLULOID AS A SUBSTITUTE FOR WAX IN FOUNDATION.

In your reply to A. B. Anthony, page 987, regarding a substitute for beeswax in foundation, you make mention of several articles that you have tried. Have you ever tried celluloid in thin sheets with cells stamped, and the whole given a thin coating of wax? Danbury, Conn. FRANK LACEY.

[No, I never tried the substance; but I am satisfied it would be altogether too expensive for the purpose. If I am wrong, I shall be glad to be corrected. But even if it is cheap, I should question very much whether such an article would ever be used by the bees. They would not be inclined to build their wax superstructure on top of the celluloid foundation, and I should imagine they would "stick up their noses," and leave it in disgust. Foundation made of metal like pressed tin, or of wood, has been used; but the bees built their wax on top of the cell walls after a fashion, as they evidently did not like it.—ED.]

YOUNG BEES BEING CARRIED OUT DURING WINTER.

My bees on the 16th of January made a good flight. Some of my colonies brought out young bees nearly full grown. Please tell me the cause, as I can't find any thing in GLEANINGS. I am wintering my bees on their summer stands.

McBrides, Mich. WM. L. STEWART.

[It looks very much as if your bees have been rearing brood, and that this brood had nearly matured, became chilled from a cold spell, and died. In this case the bees, at the first opportunity, would empty out these cells, and dump the contents at the entrance.—ED.]

A MODEL BEE HOUSE AND CELLAR.

My bee-cellar is dug out of hard limestone, and then floored and ceiled all over with matched lumber. The bees winter well in it; but as I have a house built over it (see photographs) the floor is wet on account of the warm air from the cellar. Can you tell me how to keep it dry? The temperature does not vary more than one or two degrees from 44. I expect to put a part of my bees in the house next spring, for an experiment, as it will hold 64 hives without crowding.

M. P. RHODES.

Browntown, Wis., Jan. 5, 1903.

[There is no way you can remove the excess of moisture except by some scheme of ventilation. Moisture in a bee-cellar does not necessarily do any harm, providing the temperature is kept uniform, or reasonably so, and providing the bees have fresh air occasionally. But, according to Doolittle's experiments, a cellar reeking with dampness, without ventilation, winters bees successfully providing the temperature can be kept *absolutely uniform at 45*.—ED.]

SULPHUR AS A CURE FOR BEE-PARALYSIS.

In July, 1902, I noticed a swarm of bees in my yard that seemed to be in a state of continual agitation. Bees would be running about the entrance, and I could count from 12 to 25 or more bees at any time of day in the grass about the hive, in a dying condition. Some would be on their back, kicking; others would be crawling about, and showed a distinct trembling motion, and all had a sort of greasy, shiny appearance. I knew the queen was young and prolific; but the bees died off so fast they could gather no surplus. I decided it was bee-paralysis. A few months before, I had read an article in GLEANINGS by Mrs. E. B. Hawkins, about sulphur being a cure for the disease. I procured a salt-cellar, filled it with powdered sulphur, removed each comb, and lightly sprinkled the brood. In two or three days I examined the combs to see what damage the sulphur might have done, but found every thing apparently all right. I then gave them another good dose—larvæ, eggs, bees, and all—and in about two weeks the bees had entirely disappeared. Let some one else try it. I will guarantee the sulphur to do no harm.

Kilbourn, Wis.

C. H. PIERCE.

What will be the best way to handle a queenless colony next spring? They are heavy in stores.

L. W. PARMAN.

[You had better give that colony a queen as soon as you can. Queenless bees are quite apt to succumb during winter, even when they have all other conditions favorable. If you have not a queen that you can get, better unite that colony to some nucleus. If the bees have been long queenless, there will not be much likelihood that they will attack the queen furnished them with the nucleus.—ED.]



OUR OWN APIARY IN SUNNY CUBA.

It is now the 29th of January, and honey is coming in again. The sound of the extractor is music to me while I sit here, without coat or vest, and write. The bees are too busy to rob, and Mr. Wardell and Stephen are happy. The door to the extracting-room is wide open, and every now and then a great pan of cappings is put in the sun wax-extractor; but the bees, for a wonder, don't seem to care much even for cappings. Yesterday I went out on my wheel to see where the honey came from. The country roads here are little more than cow-paths, or a sort of road made by drawing water with an ox-team on a sort of rude sled, or, rather, stoneboat, made of a forked log. Sometimes the water is drawn in a barrel, but oftener in a natural barrel made by sawing off the bulged part of the trunk of the royal palm. This beautiful palm-tree has its trunk bulged part way up to the top, exactly as a seed-onion stalk is bulged, and for the same reason—to give it strength to stand the blast, with the smallest possible amount of material. This bulge is hollow, or filled with only a sort of loose pith. I followed one of these paths in its devious way past the Cuban cottages, down to the river. Whenever you can strike a trail where they have been hauling water you have a *fine* wheel-path. Wheels are so unusual here that people stop their work and often rush out of the houses to see one pass. The river (as it is called) has a swift current over a beautiful pebbly bottom; and as the water comes from a sulphur spring back in the mountains it has the reputation of possessing medicinal qualities. Be that as it may, it certainly makes me feel like a new man whenever I take a bath in it. Well, when I was taking my accustomed bath I thought I heard bees overhead, and investigation a little later showed a great quantity of them humming about the top of a royal palm, close to the water's edge. This palm bears great bunches of nuts, perhaps all or more than you could wheel on a wheelbarrow, and they are used here only for feeding swine. In fact, they are almost the only feed they have for pigs. As the lean pork is about the best I ever tasted anywhere, it may be owing to this "nut diet." I wonder if our good friends at Battle Creek, Mich., couldn't see their way to "let up" a little on flesh for food if it were produced by exclusive nut diet. How do they get these bunches of green nuts from the tops of these great trees? Why, men trained to the business, with a peculiar rig of stout rope, climb the trees and cut off the clusters for five cents a tree, and I am told some men will climb over 100 trees in a day. Do you say I am writing about pigs, etc., instead of our apiary? Not so.

Listen. After the bunch of nuts is cut off, this wonderful tropical tree proceeds at once "to grow more nuts to feed more pigs," etc.; and one man said a thrifty tree would give a crop of green nuts every month in the year. Another man said, not so many as that, but that it *would* send out a great quantity of blossoms in a very short time after the nuts were gathered, and I found the bees just roaring on these great loads of blossoms. I had for some time suspected the honey, at least a large part of it, came from this source, because the bees were going in great numbers in the direction of the palm forests.

CAPPINGS; HOW SHALL WE RENDER THEM INTO WAX?

With the taking of 14,000 lbs. of honey there is, of course, quite a lot of cappings, especially as *we* allow the combs to stay in the hives until most of them are sealed over. I have heard some say we could get just as much for our honey, whether sealed over or not; but we do not believe in that sort of doctrine, even in Cuba. Good thick well-refined honey is worth more for *any* purpose than thin raw honey that may ferment, and burst the barrels. What shall we do with all these cappings? First, we are to drain all the honey out possible; then (according to *my* notion) we are to save *both* wax and honey, and we want both in the very best shape possible. The solar wax-extractor is the only thing to do this, so far as I know. All steam and boiling-water arrangements would spoil the honey. Some Cuban bee-keepers say the honey sticking to the cappings is not worth the trouble; but I can not as yet agree with them. A plan for rendering all wax, in use here, is to make a stout tight box of plank, with a bottom of galvanized iron. Set this on bricks, and build just a small fire under the iron bottom, so as not to scorch or burn the wood sides. Put in a little water, then your wax. When melted, dip the clear wax from the surface and pour it into tubs made by sawing a barrel in two. To get the wax out of the tubs, loosen the top hoop or hoops. I saw one huge cake of wax taken out of such a tub; but in doing it a gallon or two of thick dark honey spread about on the ground. With honey at 35 to 40 cts. a gallon, the loss was not much; but if this honey had been taken out with the solar extractor it would have been the *very best*, for all honey obtained from cappings is thicker and *riper*, and better for table use (to my notion any way), than any that comes direct from the honey-extractor. Of course, the solar wax-extractor is slow, but a little attention of a minute or two once in a couple of hours is all it needs, and I think a large size will keep up with any apiary if it is kept going whenever the sun shines.

We have found trouble so far in getting the bees to rear brood in the winter time. The weather is certainly warm enough, and pollen is coming in great plenty; but the brood-nest is apparently so filled with hon-

ey that the queen can not find a place to deposit eggs. I have been very reluctant to accept this as an explanation; but other bee-keepers assure me such is the case, and some of them say our red-clover strain is worse than any other in thus filling every empty space with honey. I have suggested getting hybrids, or, better still, some of the Syrian or Holy Land bees, that are such *persistent* raisers of brood in season and out of season; but the objection is made that they swarm so much the remedy is worse than the disease. All agree the red-clover bees are the fellows for honey if we could only keep up the population of the hives. Throwing out the honey with the extractor seems to be the only remedy, and some seem to think the great objection to producing comb honey here is the filling of the brood-nest with honey so no young bees can be reared. The temperature for the last 15 or 20 days has been from 75 to 85, day time, and 65 to 75 at night. With 500 colonies in one yard there has been considerable trouble with robbing, a great part of the time, whenever we attempt to take out and put back the combs in extracting. We usually take out from 75 to 100 combs (not taking any with unsealed brood), before doing any extracting. After these are emptied we take out a similar lot, putting the emptied comb in their places. A tent is put over the hive when lifting out the combs and brushing the bees off. There are altogether too many bees here in one spot to manage queen-rearing successfully.

TEMPERANCE, HEALTH NOTES, ETC., IN CUBA.

A very good friend of mine said, "Now, Mr. Root, you must not go and write up all the good things about Cuba, and put a rosy coloring on it all, and say nothing about the bad. Be honest and fair, and tell the bad as well as the good."

Perhaps his timely injunctions are needed, especially as my disposition is toward "thinketh no evil," and, besides, it does seem unkind, and out of place, to mention unpleasant things when every one has been so kind and courteous. For instance, a beautiful little woman (a bee-keeper's wife) apologized for giving me a bedroom that was so filled up with crates of nice comb honey I could hardly get into bed; and I *did* have to turn edgewise to get to my wash-bowl and pitcher in the morning. I might have grumbled at such accommodations, and complained of the "homes" of Cuban bee-keepers; but what would these people, or *anybody else*, have thought of me? I will tell you what I said, and I said it *honestly*, too.

"My good friends, years ago, when almost a boy, I had *dreams* of great piles of beautiful comb honey, and very likely I shall dream of such things to-night; and the beauty of it is *now* and *here*, that, should I wake up and look about me, I shall find these extravagant dreams have all come to be a *reality*. Don't you worry

about putting me to sleep in a place with *such* surroundings."

Now in regard to temperance in Cuba. Not only do almost all the stores in Havana sell drinks, but all the stores in the country towns sell drinks, and furnish coffee and refreshments. In Paso Real there are nearly a dozen stores (*general* stores we would call them in the North). These all sell drinks, and sell to everybody, black or white; man, woman, or child. Anybody who has a nickel can get a drink. This is bad, and no doubt much money is paid for drinks that should go for food or to clothe the naked children; but to my great surprise I have not yet seen any one the least bit *drunk* in Cuba. If I am right, there is no tax or license on intoxicants. If one wants to get drunk he can do it with very little money. I can only guess *why* intemperance is not worse with the bars all down, as it were. First, there are no screens, and no secrecy about these drinking-places. It is all in *open daylight*. No one goes behind the counter or into any back room.

Secondly, there is very little beer sold, comparatively. In Havana there are a few places that advertise beer, but little or none in the country and country towns. The common drink is some sort of red wine, served in little glasses. This wine, I am told, is brought from Spain, in the "garafones" pictured and described on page 903, Nov. 1. I have never tasted it, and don't know how intoxicating it may be.

There are police, or home guards, all over the land, on the trains, in city, town, and country; but I can not see that they have much if any thing to do. Perhaps their constant presence is a restraint to disorder.

Again, we hear much of the Cuban coffee—the "drip" coffee that friend Poppleton told us how to make eight or nine years ago. Now, this is the finest coffee (if one wants coffee) I ever tasted; but the average Cuban does not drink a great quantity of it.

When I first came here I had some of my old trouble in the tropics—a tendency to chronic dysentery—and I began to worry for fear I could not get my favorite diet of toast and scalded milk; but I soon found it was no trouble at all. At almost any restaurant they would come to the table with two tea-kettles, one in each hand. First they would pour into a large tumbler scalded milk until you indicated with your finger how high up on the glass; then coffee half an inch, or a whole inch, as you desired, was put in to fill up. Now please stick a pin right here—I want to digress.

Some years ago I told you of a new "health fad"—going without your breakfast. A book has, in fact, been written about it, and lots of good people tell us this simple thing would almost run doctors out of business. Huber has, for the last two years, had only two meals a day from preference, and says now he likes that way better. Well, almost all Cubans have been living this way for years past, for centuries for aught I know, and the greater part

of the Americans, when they get here, fall in with the fashion. It made me think of the "new onion culture" that was, a few years ago, heralded by all the agricultural papers as a "new discovery" of great value. When I got over to Bermuda I found they never grew onions any other way, and had followed it for probably a hundred years or more. Traveling in other countries often takes the "conceit" out of a body. There is one little thing about this "ten-o'clock breakfast," however, that should be mentioned. These good people take a little *coffee* when they first get up. Now go back to where we stuck that pin.

The coffee is *mostly scalded milk*. Do you wonder they get along so well on only two meals a day? Once more: A very bright woman (there are many of them here in Cuba) told me confidentially they scalded their milk and put a little salt in it so it would *keep* in this warm climate. I imagine they have it on hand at all hours in the day; for twice when I wanted to take a wheel-ride, and start about daylight, I found a big tumbler of hot scalded milk, flavored with a little coffee, with a roll right handy. On each occasion I rode eight or nine miles with ease after this repast; but it was on the beautiful stone road called the "calzada." Just one more pleasant fact:

Mrs. Root can tell you that I am always better pleased with my food when it is a little *scorched*. Whenever she (or any other good woman) begins to apologize for overdone cooking, I can always say honestly, "Oh! don't worry; it will please *me*, at least, all the better." Well, quite a few of the Cubans have the good sense to prefer greatly their milk just a little "scorched," and that hits me to a dot.

I said I could not learn there was any legislation in regard to the sale of drinks. There is a law, however, in regard to drinking-water. Every vender of drinks is obliged to furnish, free, good drinking-water, and he is furthermore required to wait on his free-water customers before any other. He must have this good water so handy he can set it before whoever calls for it, without a moment's delay.

The first day I got into Havana I rode out to the terminus of one of the electric railways. The car stopped close to an outdoor drinking-stand. As the people rushed up to the counter, saying something I could not understand, he set out a row of *large* glasses of very clear nice-looking water, and every man that took a glass poured down the whole of it and went off. I was surprised to see these people drink such a lot of water, and more surprised to find not one even stopped to thank him. I was afterward told the city, or the country, as the case may be, paid him for doing this, and therefore no thanks were expected. Oh how I would rejoice to see every saloon-keeper (as long as we *must* have them) in our land, and the keeper of soft drinks also, paid by the government for furnishing free

water in like manner! And I would rejoice *still more* to see the whole liquor-traffic *out in the open air*, in like manner.

A little time ago when there was a discussion in regard to removing the screens from the saloons of Cleveland, and having no back rooms or back doors, a brewers' convention frankly declared it would "knock out" from one-half to three-fourths of their trade. To be *sure*, it would. "Men love darkness rather than light, *because* their deeds are evil."

I fear I am not telling many of the bad things about Cuba, after all; or if I do I find some good feature about it, or some redeeming thing to follow. Please bear with me a little while I speak of something not often mentioned in print, even though it is a thing of *very* great importance concerning the health of the multitudes in the city.

A man at our hotel told us that, only four or five years ago, it was the custom for men and boys, little and big, to respond to the call of nature on the best streets in the city of Havana, in *open daylight*; and it had been the fashion so long it could not be stopped until the health authorities made water-closets at the corners of the parks, and close by the busy streets. These closets are made of galvanized iron, rather ornamental than otherwise, and large enough to accommodate three or four men at a time. Streams of running water keep the sanitary conditions right. At first I was puzzled to know how they kept down vandalism, for I could not believe these people were an exception to the world at large in this respect. Investigation showed that, while the occupant was mostly concealed from view, the lower part of the structure was open to view. The police, or home guards (as well as everybody else) could see the occupant's feet, and nearly up to his knees; and he could see the premises were at all times clean and tidy. When I took in, after several days' observation, what all this meant, I fairly groaned in spirit to think no American city, at least so far as I know, had ever adopted any thing of the sort.

Just a few weeks ago I got off an electric car in a northern city. I asked for a closet, and was referred to a saloon. Of course, the saloon-keeper has a nice closet (or should have), and you are expected to buy something if you use it. That is right. He should not use his money to accommodate the whole wide world, without pay. Instead of going to the saloon I went to the nearest hotel, and found a very plain notice, "These closets are for the accommodation of the guests of the hotel. Other people *must* go elsewhere." I went to the clerk with a handful of change and told him I came in on an electric car, and expected to go out on another in ten minutes, and that I was abundantly able and willing to pay for all I wanted. He smiled, but refused to take anything. I am told this excellent sanitary arrangement was planned and carried out by Geo. E. Warring, who

gave his life in planning sanitary sewage for Havana, assisted by Gov. Wood. Very likely our electric railways are planning something nice, and we hope our cities will combine with them and bring about a much-needed reform.

THE GIANT GIBRALTAR ONION; SMALL GREENHOUSES, ETC.

I got one ounce of seed of you and put out 600 in the hot-bed. I thought for a while they were not going to be any good, as they ran to necks instead of bottoms. I bent the tops down a time or two, and about half of them made good large onions. The rest of them are in the garden yet. They are fine onions to eat raw, very mild.

I want to put up a small greenhouse to raise tomato-plants and other garden-plants. I thought of making it 16 feet long, a bed on each side 3 feet wide. Would it do to cover it with oilcloth? And as to heat, if I put a heating-stove in the far end, and run a stove-pipe along back to the vent, would it heat it sufficiently? How high would you make the beds, and how deep? I shall be thankful for your advice.

Dundee, Oreg.

S. MINCHIN.

Friend M., I do not think I would risk oilcloth for your plants. It might, however, do in your locality if you have no heavy snows. Cloth is better, of course, than no protection at all; but it is seldom used where one has artificial heat like the stove you mention. On page 29 of our book "What to Do" is a little greenhouse of that kind made of sashes. This gives a path through the center 2 ft. wide and about 3 ft. deep. The beds are about 4½ ft. wide. One can stand up in such a structure right under the ridge. We used such a greenhouse very successfully by warming it with steam-pipes. I think you would be better pleased to use glass sashes than to undertake to do anything with oilcloth. Our book on tomato culture gives very full directions for using cloth-covered beds in localities where there is no snow and the weather seldom much below the freezing-point.

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now in the hands of the printer, tells how to rear

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and tells the cause of and remedy for injury in shipment; how they may be Directly introduced with positively no risk of loss or injury, and much other valuable information. It describes the Twentieth Century

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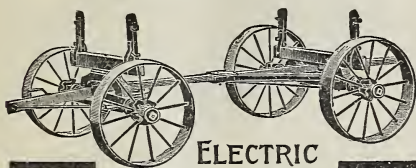
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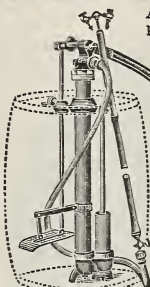
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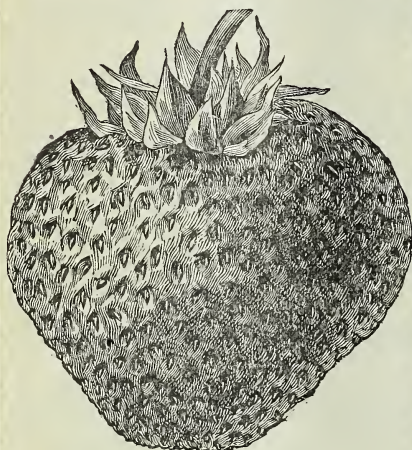


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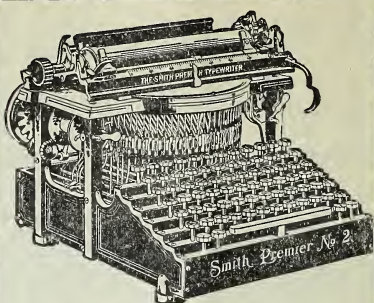
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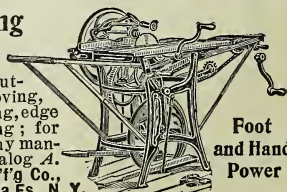
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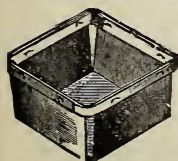
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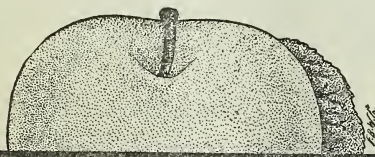
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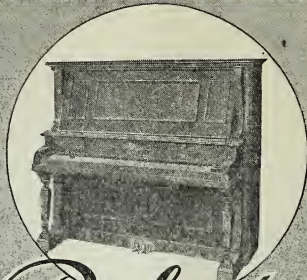
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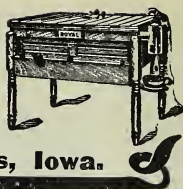
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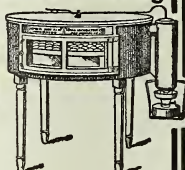
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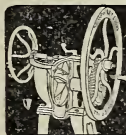


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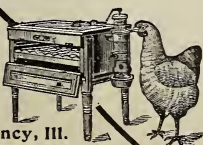


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DISCONTINUANCES. The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have his journal stopped after the time paid for by making his request when ordering.



JAPANESE BUCKWHEAT FOR SEED.

If any of our readers not too far distant have for sale any choice Japanese buckwheat suitable for seed we should be pleased to hear from them with a sample by mail, and a letter stating how much you have to sell and what you ask for it. There was so little grown in this vicinity, owing to unfavorable weather, that we have not secured our usual supply for seed.

BRASS SMOKERS.

While we never have appreciated any great advantage in a smoker made of brass over the ordinary tin ones yet, because some prefer them, we are prepared to furnish all our new styles, except the Junior, in brass at 25 cents each more than the tin; and in these the binding on the bellows as well as the hinges and legs will be of brass in addition to the brass fire cup. We have on hand a few of last year's style Cornell smokers of brass which we offer at \$1.00 each. By mail, \$1.25.

DELAYED SHIPMENTS.

Owing to the inability of some of the railroad systems of the country to handle the immense amount of freight of all classes there have been orders in force on several lines refusing to receive freight of a general nature for quite a number of days. In this way a good many shipments have been delayed in reaching destination, and some we were unable to ship promptly because they would not be taken till the embargo was lifted. We mention the matter here so that we may not be blamed for delays beyond our control.

BUSINESS BOOMING.

We have already shipped since September, on the business of this year, over sixty carload shipments of bee-keepers' supplies against less than 45 up to the same date a year ago. Notwithstanding this we are as badly crowded and behind on orders as we ever were at this season, having on hand unfilled orders for more than twenty carloads.

The outlook from almost every direction, as near as it can be estimated at this time, is most promising for a favorable season. We hear of abundant rains in Southern California, which gives promise of a good season there; also in Southern Texas. Don't put off too long the placing of your order for your season's needs or you may be disappointed in the time you receive them. We allow an early-order cash discount of 8 per cent for orders accompanied by the cash this month, which it is worth your while to take advantage of.

Convention Notices.

A bee-keepers' institute will be held March 2 and 3, in Canandaigua, N. Y. The Ontario County Beekeepers' Association will hold its regular annual meeting in connection with this institute. Prof. Frank Benton has been engaged by Director of Farmers' Institutes, Mr. Dawley, to attend this meeting.
Naples, N. Y. FRIEDEMANN GREINER, Sec.

A series of bee-keepers' institutes will be held in this State as follows: Canandaigua, March 2, 3; Romulus, March 4; Auburn, March 5; Cortland, March 6; Fulton, March 7; Syracuse, March 9, 10; Amsterdam, March 11.

Prof. Frank Benton, of Washington, D. C., who is furnished by the U. S. Department of Agriculture at the expense of the Bureau of Institutes of the State Department of Agriculture, will address the meetings. The New York State Association of Bee-keepers' societies will hold its annual meeting at Syracuse, March 10, at 10 A. M., in the City Hall. Prof. Benton and other prominent bee-men have informed us of their intention to attend this meeting, and a profitable and interesting session is in store for those who attend. Special rates have been secured for entertainment at the Manhattan Hotel, Fayette St., at \$1.25 per day.

Romulus, N. Y.

C. B. HOWARD, Sec.

Queens == 1903 == Queens.

We have ten different yards five to twenty miles apart, where Italians, Cyprians, Holylands, Carniolans, and Albinoes are bred for business. Tested queens, \$1.50; \$8.00 for 6; \$15.00 per dozen. Untested, \$1.00 each; \$5.00 for 6; \$9.00 per dozen. Our best and finest breeders, \$5.00 each. One and two frame nuclei a specialty. Bees and Queens in any quantity to suit purchaser. Safe arrival and reasonable satisfaction guaranteed.

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Wants and Exchange.

Notices will be inserted under this head at 10 cts. per line. You must say you want your advt in this department, or we will not be responsible for any error. You can have the notice as many lines as you please; but all over ten lines will cost you according to our regular rates. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A few bees on L. frames. Write, stating price, etc. H. W. COLEY, Westport, Conn

WANTED.—To print your return envelopes, 25 white XXX No. 6, for 10c. THE BEE FARMER, Woodstown, N. J.

WANTED.—Bees on shares. Best and surest locality in the State. Also will buy bees, Address B. F. HOWARD, Hayt's Corners, N. Y.

WANTED.—Boy or young man for work in greenhouse and truck garden, with some bee, poultry, and farm work. Steady employment to the right man C. WECKESSER, Marshallville, O.

WANTED.—By a girl, a girl as partner, age 16 to 30, to buy and operate a small poultry, fruit, and bee farm in Missouri or Illinois, mainly poultry. About \$100 apiece necessary to begin, balance time payment, about \$500. Enthusiasm and business ability desirable. The very best of references as to integrity and character required. For particulars address Miss H., care of The A. I. Root Co., Medina, Ohio.

WANTED.—To sell bees and queens.
O. H. HYATT, Shenandoah, Iowa.

WANTED.—To correspond with some young man who wants to learn the bee business.
H. W. COLEY, Westport, Conn.

WANTED.—To sell or exchange an automatic gauge lathe and one broom-handle lathe. Address
W. S. AMMON, 216 Court St., Reading, Pa.

WANTED.—To sell basswood-trees for spring planting. One to four feet, 10c each; 10, 75c; 100, \$5.00.
G. W. PETRIE, Fairmont, Minn.

WANTED.—To sell 50 colonies of bees at \$3.00 each. Or bee pasture wanted June 1 for 400 colonies.
C. D. BROWN, New Castle, Cal.

WANTED.—To exchange 160 acres of good land in Finney Co., Kan., 17 miles north of Garden City, for bees; a bargain. Address
GEO. R. WILLIAMS, Box 104, Ottawa, Ill.

WANTED.—To exchange Root's hives for comb honey complete, for B. P. R. and S. C. B. Leghorn chickens. Write me
PERRY FOCHT,
R. F. D. No. 1, Wapakoneta, Ohio.

WANTED.—To sell, or exchange for stock 30 colonies of Italian bees in frame hives, with comb-honey super and honey-house; bees at Hotchkiss, Colo.
Address S. W. WEEKS, Delta, Cal.

WANTED.—Forty colonies Italian bees in 8-frame L. bodies; strong colonies and plenty of honey; satisfaction guaranteed; \$4.00 each, shipped in April and May.
W. E. YODER, Lewisburg, Pa.

WANTED.—A number of Italian colonies on shares; must be No. 1 in every particular. Let me hear from some good reliable men only, with full particulars
FRED P. ELSHEE, L. B. 36, Waverly, N. Y.

WANTED.—To sell 10 bbls. White Bliss Triumph potatoes—a little unburned or green, but all right for seed—not sorted, \$2.00 per barrel; will ship in the spring.
J. W. BITTENBENDER, Knoxville, Iowa.

WANTED.—A buyer for a copper liquefying and filling tank, capacity 400 lbs. of honey, practically new; will sell at a bargain. For full particulars, price, etc., address
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WANTED.—To sell catnip-seed grown on mammoth cultivated plants, at 25 cts. per oz.; special price in quantities. Honey producing artichoke tubers or sprouts, 50 cts. a peck.
JOSEPH M. MARTIN, New Carlisle, Ind.

WANTED.—To sell 50 stocks of Italian bees, 50 patent hives, stock of tools, implements, bee-supplies, and foot-power Barnes saw at bargains; all new. Cause, lost health and use of right hand. Write.
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WANTED.—A man with small family to work a good farm of 40 acres, and an up-to-date apiary of 200 colonies, on shares; or can work the bees without the farm. A very good chance for the right man.
W. H. FORBES, Plainfield, Mich.

WANTED.—Farm hand with no bad habits, that wishes to learn bee-keeping. I prefer one that wants steady employment. I keep about 500 colonies, and run for both comb and extracted honey. Please state wages wanted.
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WANTED.—A boy of fourteen to eighteen years of foreign parentage—German or French preferred—to work in apiary or on farm. An excellent opportunity is offered to the right party to work into a good paying business, as I want to retire as soon as possible. A good Christian home for a boy of good habits. For full particulars address
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WANTED.—To sell my formula for protecting fruit-trees from rabbits, mice, borers, etc. My own discovery after trying almost all other methods only to fail. Guaranteed not to injure trees. Cheaper than any other process. Only \$1.00 The secret worth many dollars. Agents wanted. Big profits Address
ORCHARDIST WOLFE, Gwenddale, Ind. Ter. J

WANTED.—Comb to render into wax; will pay cash.
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WANTED.—To exchange Angora goats for anything useful.
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WANTED.—To exchange a Root foundation-mill, 10 inch, almost new, for offers.
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WANTED.—Names and addresses of those who want good books or sheet music. Ask for what you want.
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WANTED.—To exchange my new price list of 2000 ferrets, now ready to ship, for your address on a postal card.
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WANTED.—To sell thick-top L. frames, in flat, from yellow pine, at \$8.00 per 1000, f. o. b.
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WANTED.—A second-hand foot-power saw for hive-making, also Dov'd hives in flat (new), bees, and extractor.
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WANTED.—To sell a 10-h.p. horizontal engine with upright boiler, with pump, smoke-stack, and all connections, for \$125.
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WANTED.—To exchange a large list of second-hand goods, as good as new, for foundation, mill, and extracted honey. Address
QUIRIN THE QUEEN-BREEDER, Parkertown, Ohio.

WANTED.—To exchange a 22-cal. 27 shot Winchester rifle, and an outfit complete for making crayon portraits, for a good incubator, B cycle, graphophone, or camera.
D. B. THOMAS, Odin, Mo.

WANTED.—To sell 600 stands of Italian bees in Simplicity hives in lots to suit buyer. Will deliver the same to any point in the West if desired. Correspondence solicited.
TYLER BROS., Nicolaus, Cal.

WANTED.—Bee-man to assist in running 200 colonies. Write, stating your experience, and wages required to
W. R. ANSELL,
Apiarist, G. N. Ry., St. Paul, Minn.

WANTED.—You to read what A. I. R. says on page 36 of GLEANINGS, Vol. 31. Order this book at once, and write me for prices on ginseng seed, or other information you want.
A. P. YOUNG, Cave City, Ky.

WANTED.—To sell or exchange for bees or supplies one McCormick corn-shredder, been used one week, just as good as new; and one McCormick corn-harvester, been used two seasons.
C. L. PINNEY, LeMars, Iowa.

WANTED.—For cash, 250 or 300 colonies of bees in ten-frame hives; extra combs also. Prefer those that have been run for extracted honey in the Southern States. State prices on cars and what you have for sale.
J. D. RHOADS, Las Animas, Colo.

WANTED.—To sell for cash, 5-gal. square tin cans, used for honey, at about half price of new cans. Also elegant exhibition 12-lb. no drip honey-cases for plain Danz. and 4½×4½ sections; made for Pan-American. For prices, etc., address
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WANTED.—Owing to recent death of my husband I want to sell my bees and entire outfit, consisting of 200 colonies of bees now located in three apiaries; two locations on Mangrove Island to move bees to in summer, three boats—including one gasoline launch, all necessary appliances to run for extracted-honey. To those interested I will give full particulars.
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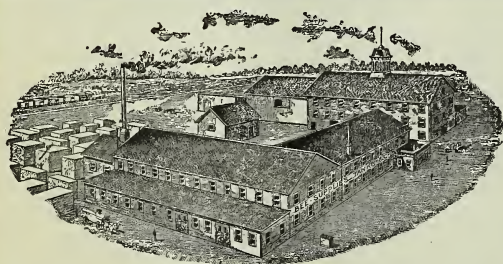
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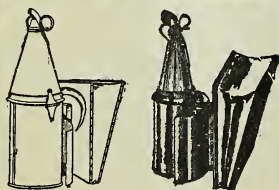
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Dear Sir:—Inclosed find \$1.75. Please send one brass smoke-engine. I have one already. It is the best smoker I ever used.
Truly yours,
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It will pay you to get prices on

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Goods, when supplied direct from our factory, will be charged at Root's own prices. When supplied from Paris stock they will be quoted as per French catalog.

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